

Petersen's

MARCH, 1979



Photographic Magazine

\$1.50
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THE IMPACT OF COLOR

•HOW AND WHY IT WORKS
•HOW TO USE IT

CUTOUT PROPS

PUT PIZAZZ
IN YOUR PRINTS

SLR BASICS

ALL ABOUT
USING LENSES

PLUS:

NEW Y-O-B SYSTEM
CONTINUES



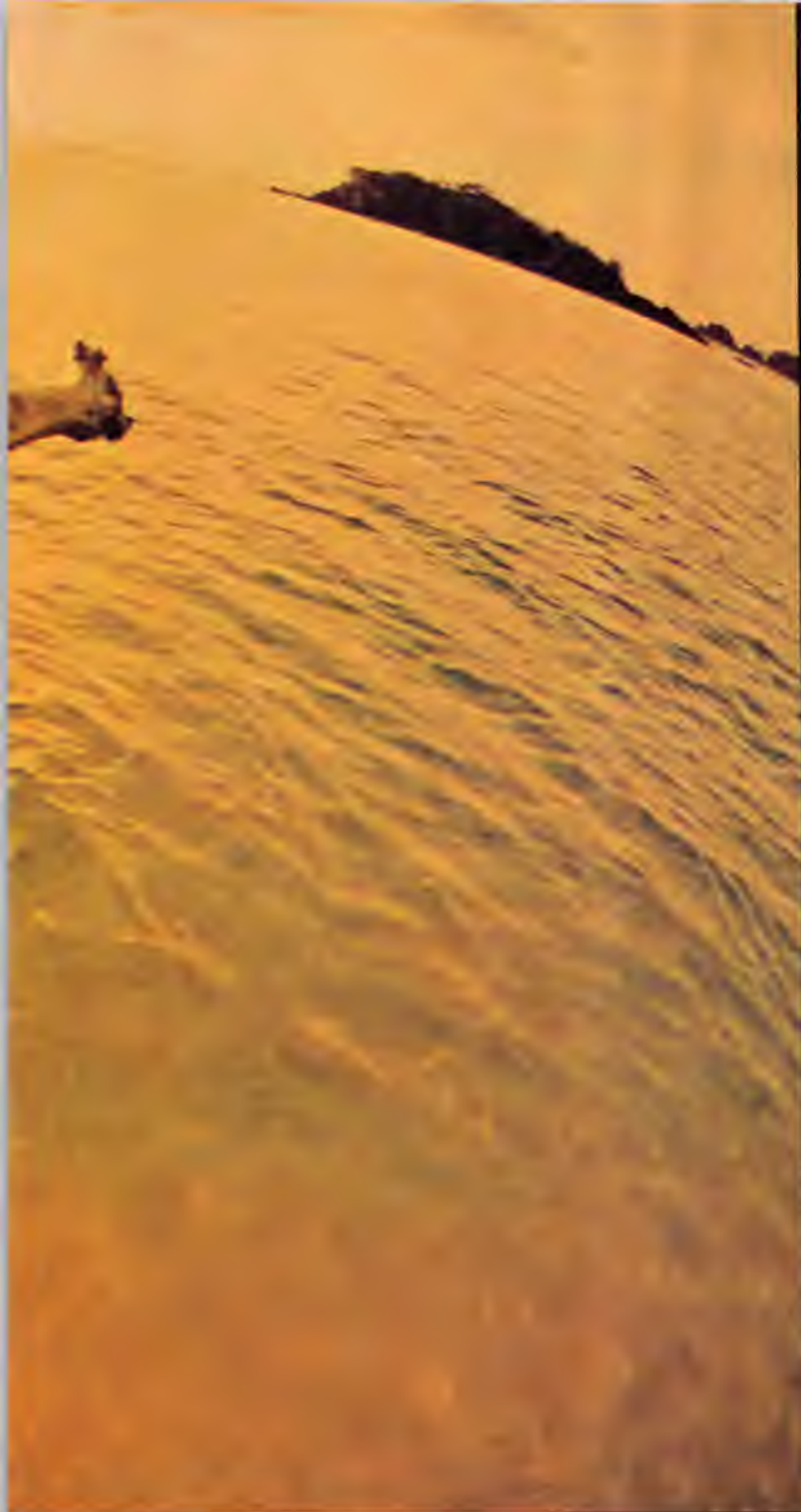
5 CHANCES TO WIN

SUPER SWEEPSTAKES
DETAILS INSIDE





Introspective photogra Confidence



At last, everything is perfect. The feeling... the light, the subject... all blend into an image created in your mind. Your finger moves, instinctively. And, your Nikon responds, instantly, capturing on film both the mood and a special moment in time.

Today, an ever increasing number of creative individuals are turning to Nikon compacts to turn feelings in photographs. Many of them are inspired by the example of professionals, for whom Nikon has long been the overwhelming choice. Indeed, many a pro has found one of these "personal size" Nikon SLRs the ideal complement to his own Nikon system. They are engineered to the same, high standards of precision to instill the same confidence in their supremely reliable Nikon performance. And, of course, they share the almost endless capabilities of the same famous Nikon system.

Both Nikon compacts offer the reliable accuracy of true Nikon center-weighted metering. Their dual light sensors assure consistent exposure uniformity under virtually any light conditions. Operating controls are adult-sized and positioned at your fingertips; there's no groping or fumbling to mar your concentration.

The moderately priced Nikon FM features gallium photo diodes, with always bright LED indicators allowing exposure control within ± 2 EV through the finder. In the electronic Nikon FE, silicon photo diodes are used to give you automatic exposure control with any reflex-viewing Nikkor lens, along with special compensation features for unsurpassed creative exposure flexibility.

Both the Nikon FM and FE accept the low-cost MD-11 motor drive for firing rates up to 3.5 frames per second (even multi-exposure effects are easily created at motor-drive speed). For auto-flash photography, there's the Nikon SB-10 thyristor unit, which automatically programs the FE shutter for correct flash synch.

And, you can give eloquent expression to your inner visions through nearly sixty Nikkor lenses, with confidence in their world-famous sharpness and consistent color fidelity.

Visit your Nikon dealer. And, ask also about the traveling Nikon School, where you can gain new insights into your own creativity. Or, write to Nikon Inc., Dept. N-4, Garden City, New York 11530. Subsidiary of Ehrenreich Photo-Optical Industries, Inc., (In Canada: Nikon Division, Anglophoto Ltd., P.Q.)

The confidence of Nikon.
You can't touch it. But it will touch you.

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phy with the of Nikon



Vivitar Series

1

How the Vivitar Series 1® 70-210mm f3.5 Macro Focusing Zoom Lens became a standard lens for serious photographers.



There was a time when professionals considered a zoom an amateur's lens. It simply did not have the resolution, versatility, and ruggedness they demanded.

The introduction of the Vivitar Series 1 70-210mm f3.5 radically changed their thinking about zoom lenses. Here was a lens that could rival the performance of fixed focal length lenses and at the same time offer unique macro focusing.

To accomplish the very high design objectives it was necessary to incorporate 15 lens elements in the 70-210 zoom lens.

The final design and exact positioning of each element was a mind-boggling challenge. It required the services of one of the world's most sophisticated computer banks to deal with the incredible number of variables. The designers insisted that aberrations be minimized at *all the focal lengths* in the zooming range... including close focus.

The word spread quickly through the world of professional photography. At last a zoom lens that corrects aberrations at close focus, optimizes performance in the normal zoom range, and both focuses and zooms with one simple control. In a short time, the 70-210mm became a standard against which all other zoom lenses are measured. Compare it to the lenses you presently use and you'll make it your standard too.

Vivitar Series 1 Program.

In recent years the demands of space exploration and military applications have exploded the field of optical design. To handle these incredible problems required new sophistication in computer technology and manufacturing capabilities. The Vivitar Series 1 designers have applied this recent knowledge to a series of lenses capable of setting new standards in photographic optics.

Each Vivitar Series 1 lens represents a unique breakthrough in optical design. Among the Series 1 lenses there is one that is a derivative of space-borne astronomical tracking lenses, another that has been hailed as one of the sharpest lenses in all 35mm photography, and another that may be the world's only true flat-field zoom lens.

The Vivitar Series 1 Program calls for an entire system of lenses, each an example of advanced technology intended to offer features demonstrably superior to other lenses currently available.

Specifications: Focal Length 70-210mm. Aperture range: f3.5-f22 (Konica to f16). Construction: 15 elements, 10 groups. Angle of acceptance: 34-11°. Weight: 940 gms. (33 oz.) Length: 158mm (6.2 in.). Diameter: 78mm (3.1 in.). Accessory size: 67mm. Lens coating: VMC Vivitar Multicoating. Closest focusing distance from film plane: Telephoto: 1.9m (6.3 ft.). Macro focusing: 29.2cm (11.5 in.). Maximum reproduction ratio: 1:2.2.

The Vivitar 70-210mm lens is manufactured to fit precisely most popular 35mm cameras including Nikon, Canon, Minolta, Olympus, Pentax, Konica, Vivitar, and universal thread mount cameras.

Vivitar Corporation
1630 Stewart Street
Santa Monica, CA 90406
In Canada: Vivitar Canada Ltd./Ltée

this month

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 SUBSCRIPTION RATES, U.S.: Military Possessions, 1 year \$10.95, 2 years \$19.00; Canada, other countries, 1 year \$13.95, 2 years \$25.00. Subscription enquiries phone (213) 657-5100.
 CHANGE OF ADDRESS: Give 6 weeks' notice. Send name of magazine and address imprint from recent issue or state exactly how label is addressed. Send old address as well as new. Mail to PhotoGraphic Magazine, 6725 Sunset Blvd., Los Angeles, California 90028.

CONTRIBUTIONS: Should be mailed to PhotoGraphic Magazine, 8490 Sunset Blvd., Los Angeles, California 90069. They must be accompanied by a self-addressed, stamped return mailer. Any material accepted is subject to such revision as is necessary in our sole discretion to meet the requirements of this publication. Upon publication, payment will be made at our current rate, which covers all author's and/or contributor's rights, title, and interest in and to the material including but not limited to photos, drawings, charts and designs, which shall be considered as text. The act of mailing a manuscript and/or material shall constitute an express warranty by the contributor that the material is original and in no way an infringement upon the rights of others. We assume no responsibility for unsolicited material. Second class postage paid at Los Angeles, California, and at additional mailing offices. POSTMASTER: Please send Form 3579 to PHOTOGRAPHIC Magazine, Post Office Box 3414, Los Angeles, California 90028.



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ON the SCENE

the EDITORS

GREAT GUSTS OF GUSTO



SEALFON



STENSVOLD



HURTER



FUNK



ROWAN

The March winds blew in a bevy of terrific articles for this month's issue, many of which are bound to excite camera and darkroom enthusiasts and inspire creative experimentation throughout the land. . . .

To begin the beguine, East Coast Editor **Peggy Sealfon** explores the world of "Color" in a fascinating piece that draws on psychology, perception, light waves, filtration theory and application, and illusion to show how color works and how to use it effectively. . . .

Technical Editor **Mike Stensvold** and Associate Editor **Bill Hurter** continue their series on "Basic 35mm Single-Lens-Reflex Photography" with "Interchangeable Lenses." This profusely illustrated story lets you see as well as read about various lenses and their purposes.

"Magic with Props" excites those of us who have always longed to transform ordinary materials into unusual elements for photographs. Contributor **Robert Funk** shows how to borrow techniques from stage and screen to learn to make your photos rather than find them. Silhouettes, cutouts, paintings and toy models are all fair game. . . .

A strong, handsome and most unique camera strap can be made from a length of tubular webbing and an assortment of miscellaneous props, and in this month's "Blueprint" **Charles Rowan, Jr.** shows just how it's done. "How To Make a \$3 Camera Strap" banishes the "pro-strap blues" while providing a delightful alternative to commercially available models. . . .

In Part II of his series explaining the Yob System for film exposure, processing and printing, Contributing Editor **Parry C. Yob** points out that the main problem in evaluating photographic materials is the lack of real standards that can be translated into everyday photography. Yob's article, "Building the Evaluator," enables photographers to compare films and techniques as well as to monitor the performance of equipment. . . .

This month's portfolio, photographed by **Mauro Marinelli**, is based on a poignant theme. "Old-timers" documents Italians who came from the old country to live in America. Marinelli was inspired by the work of Edward S. Curtis, an American photographer who, in the early part of this century, photographed Native Americans before their civilizations had become acculturated into the American melting pot. Marinelli's moving portfolio is a pictorial tribute to his Italian ancestors. . . .

Our editors and writers receive bundles of correspondence from readers, and we'd like to be able to print all of these letters. Occasionally, however, we have space problems, so we choose a representative sample of letters to print. Please address such correspondence to "Other Voices" or, when writing to a particular editor or author, specify that your comments and suggestions are for publication. This is your magazine, and we're always happy to share your ideas on these pages. . . .

COMING NEXT MONTH:

AUTOMATION—How to make it work for you.
STORYBOARDING—Visual scripting for motion pictures.
PUDDLE PHOTOGRAPHY—Take advantage of April showers.
PLUS:
E-6 HOME PROCESSING—For perfect results.
THE YOB SYSTEM, PART III—How to test your exposure and processing techniques using the "evaluator."

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In this month's cover photograph Michael DeCamp has used color subtly and boldly to delineate forms, evoke strong emotion and excitement, and create a wonderful play of fantasy, reality and unreality. See "Color," by Peggy Sealfon, page 74, for an

in-depth discussion of how color works and how to use its unique properties to make stunning images.

AUTOFOCUS IS HERE.

You're the person people will ask about the new Konica AF camera that automatically sets the focus, sets the correct exposure and sets the flash. So, we thought you'd like to know all about this revolutionary new camera so you can explain it to your friends and neighbors.



1. AIM—Center the subject in the autofocus sensing area.

2. SHOOT—It's that easy. That's all you do to take a precision focused, correctly-exposed photograph. So anyone can concentrate on finding and taking the perfect photograph.

Amazing? Of course.

This delightfully compact 35mm Konica AF is the first automatic autofocus camera in the world. Sharp focus is automatically achieved through an instantaneous, automatic electronic/mechanical/optical system. Our automatic exposure system helps make perfect pictures, anytime, anywhere. Our high speed programmed shutter overcomes subject movement and possible camera motion.

AUTO EXPOSURE SYSTEM.

Once the ASA (film speed) is set, all exposures are automatic. The proven high speed Hexanon 38mm f2.8 lens is a 4-element optical glass color-corrected design for optimum sharpness. The programmed shutter starts at 1/250th to eliminate blurs and sharpness loss due to subject or camera motion; automatically self-adjusts to 1/125th, or to 1/60th in dim-light situations.



HOW DOES THE AUTOFOCUS SYSTEM WORK?

That's the first question everyone will ask. And it's easy.

When you advance the film transport lever, you transport the film, cock the shutter (move the lens to its closest focus position) and charge the autofocus mechanism.

It has two mirrors, plus a prism and optical system that focuses the images onto a micro circuit IC sensor. The IC sensor has two panels, each with five rows of electronic contrast detectors that "see" the two images.

When you trip the shutter, the lens starts its movement from close to infinity; simultaneously the IC sensor compares the images from the fixed and moving mirrors. When a "match" is formed, electronically the sensor tells the lens to stop—at the correct point of focus!

AUTOMATIC FLASH.

A built-in "pop-up" electronic flash first sets the distance and then automatically sets the correct aperture at the instant the shutter is triggered.

Your friends will be thrilled with the excellent results from their Konica AF cameras; who knows, you may be so enthused, you'll buy one too. Then when a neighbor asks "how it works," don't tell him; show him.

KONICA CAMERA CO. Woodside, N.Y. 11377.



Konica
AUTOFOCUS
AF

OLYMPUS OM-1

It has outsold every other compact in the world.

When Olympus first unveiled the OM-1 system, the experts were stunned. The trend toward heavy SLR's with cumbersome accessories was reversed. Every other major manufacturer is copying OM-1's compact, lightweight design. But not its advanced engineering. ■ Olympus created a 35mm SLR 33% lighter and smaller than conventional SLR's, yet rugged enough to endure tough professional use. With a viewfinder 70% brighter and 30% larger for easy composition and sharp focusing. And a unique air damper system making camera operation quiet, and vibration-free. ■ Olympus innovation didn't stop at the camera. They created the world's largest compact SLR system. Nearly 300 precision lenses and components to meet every photographic demand. An unsurpassed motor drive (5 frames a second without mirror lock-up!) And a Rapid Winder that shoots over 3 frames a second (faster than expensive competitive motor drives!) ■ No wonder OM-1 is Number 1, outselling every other compact SLR in the world by being so far ahead of its time, others can't catch up.



OLYMPUS OM-2

It outperforms every other automatic SLR in the world.

For photographers desiring total exposure automation, Olympus created the OM-2. The fully-automatic 35mm SLR utilizing advanced electronics to achieve capabilities available with no other SLR. ■ Only the OM-2 features OTF (Off-The-Film) light measurement, the heart of the unique capabilities of this state-of-the-art SLR. It makes possible the remarkable Auto Quick Flash 310, whose output is actually controlled by the OM-2's internal sensors. ■ Only OTF light measurement makes it possible to control exposure during each frame in motor drive and rapid winder sequences. And only the Olympus OM-2 offers extended low-light automatic exposures to 60 seconds, with perfect exposures even if the light changes during exposure! Because only the OM-2 measures light reflected off the film and sets exposure while the film is being exposed. ■ For the entire Olympus OM story, write for our free detailed brochure to OLYMPUS, Woodbury, New York 11797. You'll see why Olympus offers an incomparable choice for all amateur and professional photographers.

Canada: W. Carsten Co., Ltd., Don Mills, Ontario



□ (CHORUS: "Tell 'em how it is...!") Surprisingly enough (or not so surprising, depending upon your point of view), lately most advertisements for enlargers stress and, in my opinion, overly emphasize color printing capabilities. Dichroic filters and their competitively numbered values are flung about like rice at a wedding; light-intensity claims would make sun-worshippers of us all; and format capabilities from humble 110 to humungous 6x7 and larger almost seem afterthoughts to practical considerations.

But I ask you, whatever happened to black-and-white printing? Enlarger manufacturers would have us believe that color is king and, in keeping with kingly pastimes, equally worthy of a king's ransom for equipment. Enough, I say, enough! (CHORUS: "Enough, enough," he says!")

All right, the fact remains that color printing is fun, believe me. I enjoy it tremendously. I also like the conveniences offered by modern enlargers, conveniences that simplify my color efforts greatly. But for most of us, black-and-white printing remains a very special challenge. The quality of an Ansel Adams print (or Fred Picker, Weston, Oliver Gagliani, Gene Smith or whomsoever) remains the elusive goal of all interested and dedicated photographers. (CHORUS: "Adams, Picker, Weston, Gagliani, Smith. Rah! Rah! Rah!")

Color printing? Fine. Once you get into color balance and adjust your exposure, that's that! A colorful representation of the original subject. But does color printing have the kind of mystique associated with the multiplicity of zone printing systems that are available to the serious black-and-white enthusiast? Emphatically, no! (CHORUS: "No, no, a thousand times no!")

Black-and-white printing offers more challenges than can be found in the entire color printing spectrum. The whole realm of creative expression can be found and realized in a black-and-white print. Yet enlarger ads concentrate on color, colorheads and the like and, apparently, choose to ignore this most demanding and rewarding of all darkroom experiences. (CHORUS: "Oh shame, shame!")

OK, where does that leave us? For one thing, black-and-white is demanding. Make no mistake about that. Oh sure, you can expose your film at practically any old speed index, soup it in any old developer for any old length of time at any old temperature and print the resulting negative on just about any old grade of paper you happen to have handy.

guide lines

PAUL R. FARBER

CONQUERING THE ZONE SYSTEM

Chances are, once in a thousand or so times you may actually come up with a passable print. For the most part, however, your prints will be just plain lousy. (CHORUS: "Just plain lousy...!")

The answer, of course, is to use one of the many zone systems available to interested photographers. Ah, but you say that such systems are difficult, almost impossible to understand, much less work with? You're right! For too many years the demon



of lousy quality has been smothered to death under clouds of rhetoric and just plain nonsense. The fact is, the zone approach is easier to work with than the old hit-or-miss method. Another fact is that a zone system will enable you to make predictable negatives that will predictably print on a given grade of paper with predictable results time after time after time. (CHORUS: "Time on my hands...")

And, once you have things under control, you will have time to concentrate on the pleasurable business of taking pictures because you will know that whatever you decide to photograph you will be able to print easily and without wasting paper, time and money as well. If I haven't sold you on the zone approach by this time, I'd advise you to turn the page and read something else. If I have sold you, then read on because I'm going to tell you about a marvelous new darkroom item that will make zone photography as easy as putting down the \$9.95 the item

costs. (CHORUS: "\$9.95? Amazing, amazing, amazing!")

OK, if those guys in the background will hold it down for a few minutes, I'd like to say that one of the biggest hassles of the zone approach is that you must first determine the actual speed of your film as relates to your camera, your lenses and your exposure meter. Another of the hassles concerns determining the actual time of development needed to fit the resulting negative onto a given grade of enlarging paper. And to facilitate the testing procedures, one normally needs an expensive densitometer. That is, you would have needed a densitometer until the advent of the DensiKit.

The detailed instruction book that comes with the kit says it better than I ever could, so I'll quote a part of the opening statement that reveals all: "Expensive and esoteric equipment is not needed. Your camera, two photofloods (or natural daylight) and an accurate exposure meter are used to expose the test film. The film is developed and the comparative density evaluation is carried out in the darkroom, using only the standard equipment and materials that are ordinarily required to make contact prints—and other than the DensiKit, no other equipment is needed."

The DensiKit contains an instruction book, which could easily become a classic in its time (by virtue of being direct and clear), three extremely accurate and laboratory-controlled film/density reference standards (in protective cardboard mounts), plus six reusable plastic test-film holders. One merely follows the instructions, step-by-step, to obtain all of the data needed to gain control over the zone approach to perfect negatives and prints—and all for \$9.95.

I'll not go into the details of the testing procedure except to say that, when the results were compared to the results obtained when using a \$1000 densitometer, I could not tell the difference. My negatives printed easily and quickly on my normal grade of paper, and without the need for, nor the use of, a densitometer.

To obtain one of these clever kits, visit your local camera store and ask them if they carry the DensiKit. If they do not, don't be discouraged. You can obtain one from the manufacturer by sending your check or money order in the amount of \$9.95 to PhotoAids, Suite 234, Santa Monica Boulevard, Santa Monica, California 90404, and you'll receive the kit postpaid. OK, fellows, I'm finished, so hit it... (CHORUS: "For he's a jolly good fellow, for he's a...") □

COLOR

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BMCED3

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FREE PHOTOGRAPHER'S HANDBOOK

This valuable 64-page pocket-sized manual contains dozens of tips and ideas for taking and making better pictures. Includes 150 photographs and drawings, dozens of charts and tables.



□ The concept of the pistol-grip focusing mechanism for photographic lenses wasn't invented by Mr. Atsushi Matsumoto. But it was he who last year decided to develop the concept into a product that was economically feasible to make, and priced within the means of those who were intrigued enough with the idea of such a lens to want to buy one. Far from being just a casual adventurer out to create and then cash in on a photographic fad, however, Mr. Matsumoto is a professional with an enviable background and some highly developed talents.

After graduating from the physics department of Chiba University, still the only public university in Japan to give courses related to photography, this rather shy, nervous, intellectual young man went to work for the lens-design department of Mamiya Camera Company. This was around 1962 when Mamiya, as well as many other camera manufacturers, was busily making the changeover from the manual calculation of lens designs to computer processing. Thus, Mr. Matsumoto was fortunate in being able to learn each complex step from the ground up.

While chatting with the Mamiya people about Mr. Matsumoto, I was told that he had worked on the designs for most of the Mamiya lenses, including those for the RB67, M645, 35mm single-lens reflexes and some for the Mamiya twin-lens reflex models. His last position was what the Japanese call a *kakari-cho*, a short of section chief or group leader.

Even though he found the work extremely interesting, after 12 years Mr. Matsumoto decided to put his talents to work for himself. His first project was a real dilly! After receiving his retirement allowance from Mamiya upon leaving, he sunk the whole amount into the design and development of the world's first 800mm fluorite lens—an optical marvel. But the lens cost \$700 just to manufacture! In fact, only three of these lenses were ever made, and none were ever sold. One was given to a Japanese distributor in the hope of having it promoted. A second was given to a British distributor on a trip to England for the same reason. And the third and last resides in Mr. Matsumoto's home as a reminder that the realization of a dream, no matter how fond, does not necessarily bring fame or fortune!

Atsushi Matsumoto did a lot of soul-searching after this somewhat bitter experience, and perhaps he came out of it a better and wiser man. In any event, he was brought back to earth with a jolt that was

FOR EAST JOURNAL CHARLES MARAH

HERE COMES PISTOL LENS—WITH ULTRAFAST FOCUSING

enough to make him face some more of life's hard realities.

As he explained to me recently, after considerable thinking he arrived at the decision to develop a "fun" lens, one which people could buy for a reasonable price and enjoy using.

This "fun" lens turned out to be the Pistol Lens, a 400mm f/6.3 telephoto. Lens construction is rather simple, with four elements in two groups. The front group is moved by the action of the pistol-grip-focusing

to part with one of his creations, even for a short time, but finally I was able to receive one and test it. One thing is certain—focusing is certainly the fastest that I have ever experienced. In fact, the action is so fast that it is advisable to practice a bit before using this lens for actual picture taking. A stroke of only $\frac{1}{2}$ -inch shifts the focus from the minimum distance of about 26 feet to infinity! Despite some misgivings on my part, the finished negatives were all in focus and quite sharp.

Promotion of an individually developed product is usually difficult anywhere. But results have been good even though the Pistol Lens has only been available for four weeks as of this writing. For example, Sakura Camera, one of the largest photographic chain stores in Japan, has already started handling the lens. While sales are still understandably slow, Mr. Matsumoto called today to



1. T-adapters allow the Pistol Lens to be used with a variety of 35mm SLR cameras.

2. The preset aperture ring can be easily operated with a forefinger.

mechanism in order to focus. The diaphragm is preset, but a separate ring can be used to open up the diaphragm for focusing and close it for shooting. The forefinger of the left hand, holding the pistol grip, can easily operate this ring quite rapidly, so there is very little inconvenience.

After hearing all the details about the Pistol Lens from Mr. Matsumoto, I was quite anxious to try it out. He was, however, a little reluctant at first

inform me that three of the major photographic magazines here had given his lens coverage, which should help considerably.

On the international level, one American distributor is reported to be interested, but negotiations are still underway, so there is nothing to report at present. There have also been inquiries from large European distributors. Surely this interesting lens will be made available in the near future in many places.

When asked about price, Mr. Matsumoto replied that he would like it to retail for under \$200. This, of course, also depends much on the distributor, so we will have to wait and see.

Future projects are already cooking on the fire, but the first concern of Mr. Matsumoto is to get the Pistol Lens well launched. After that there will be time and, hopefully, money to do many other things. Meanwhile, keep watching for the Pistol Lens and a new experience in fast focusing. *Sayonara!* □

☐ Camera clubs offer the ideal set-up for the exchange of information. The mixture of older, more experienced members and new members, who are often novices, benefits both. The more proficient members can share their knowledge gained through experience; the new members contribute a fresh attitude and the willingness to experiment and try new approaches. Thus the camera club by its very nature is a potential learning situation.

One club recognized this potential early on and developed the concept into a photography course that utilized the talents of its members for instructing interested individuals in the community in various aspects of photography. The Green Briar Camera Club of Chicago, Illinois, offered its first photography class more than 30 years ago. In those days the course covered black-and-white photography and printing only. As color photography grew out of its infancy and became popular, Green Briar started a second, color school. Through the years student interest in color photography gained until it surpassed interest in the black-and-white medium, at which point Green Briar discontinued the black-and-white course.

Today, the Green Briar School of Color Photography offers an annual course consisting of a series of six lectures in the most important areas of color photography. The 1979 series, which begins March 26, will cover the following topics: basic elements of the camera and their functions; indoor color photography (artificial lighting, portraits, films and filters, studio situations); composition; outdoor shooting; and exposure (for all situations). The sixth class is a critiquing session in which students bring in their own slides for evaluation and discussion by a panel of instructors and experienced club members as well as by each other.

Each meeting opens with a lecture, which is illustrated with slides. Leonard Gordon, a past president of the Green Briar Club and a longtime instructor in the photography school, informed me that the instructors use slides to show everything from exemplary photographs to darkroom procedures. Because slides can be projected to great proportions, making them an extremely useful visual aid, instructors put as many illustrations as possible into slide form—even prints that will be shown in class. A period of hands-on instruction follows, when appropriate (for example, students bring their cameras to the first class). There are a number of experienced club mem-

CLUB CLOSE-UPS ELISSA ROBELLINO

A CLUB THAT'S SHARING THE WEALTH

bers present at each class; in the last segment of each meeting the students mingle with these club members and the instructor to discuss individual problems on a one-to-one basis.

"The school has a dual function," says Leonard Gordon, "first, to disseminate photo information to as many people as possible, and then, to secure new members for the club. Many of the people who sign up for the classes don't have any other ac-



The Green Briar Camera Club produces a top-quality brochure each year to promote their photography school.

cess to photo instruction." At the close of each series the students are asked to fill out evaluation cards, which provide the instructors with valuable feedback.

The fee for the Green Briar Club's series of six classes is \$17.50. Although it is possible to raise funds for the club through class fees, the Green Briar Club does not set out to do this. They have kept the fee as low as possible, using it to pay rent, instructor fees, printing costs for the promotional brochures and other operating expenses. The Green Briar photography school is lucrative in another, more lasting way: It attracts new members to the club. Each year, out of the 125 or so course registrants, six to ten students subsequently join the camera club (which has about 70 active members).

Finding instructors is usually easier for older, more established clubs such as the Green Briar Club because they have developed contacts in their communities. Newer clubs interested in starting a photo school may have to rely at first on club members whose experience qualifies them to teach (which is what the Green Briar Club did in the beginning). Camera clubs that are a part of a regional council can use that affiliation both to find lecturers and to spread the word about upcoming classes. In addition, clubs affiliated with the Photographic Society of America can obtain a list of lecturers from that organization. Another way to learn of available instructors in your area is to investigate other programs involving photo instruction.

If the course fee is just large enough to meet expenses, it is accepted practice to pay for the lecturer's expenses only. However, Mr. Gordon advises that if the club is making a profit on the school, the lecturers should be paid; he quotes \$7.50-\$15 per hour as the going rate.

Word-of-mouth accounts for a large number of course participants, but most of the school's exposure is through promotion. The Green Briar Club is lucky enough to have among its members a professional printer; the club puts together an informative, attractive, professional-looking brochure each year and distributes it to camera stores and schools. They also advertise in newspapers. A club with a smaller budget might have to promote on a smaller scale, but the registration will grow each year if the club is resourceful.

The Green Briar Camera Club arrived at a program, after a number of years of experimentation, that works best for their setup and the interests of their members. Your club may have entirely different conditions and requirements, but if the club is fairly stable and you are intrigued by the idea of sharing your knowledge with others (and perhaps raising funds, too), you can teach your specialty to whomever will sign up. The Green Briar Camera Club is located at 2650 W. Peterson Avenue, Chicago, Illinois 60645; call (312) 338-4305 for a free brochure. ☐

Camera clubs please note: "Contest News" can be found on page 28.

Join a Camera Club: Just send a self-addressed, stamped envelope along with a list of nearby zip codes to Camera Club Editor, c/o Petersen's PhotoGraphic Magazine, 8490 Sunset Blvd., Los Angeles, California 90069.

A NEW GENERATION



When we promised a "New Generation" of photography with the introduction of the AE-1 in

1976, you could only guess at the spectacular world of electronic SLR photography to come. You could guess. But we knew.

Now there's the Canon "A" System of photography. A group

of cameras and accessories offering the most advanced, reliable and cost efficient performance available in photography today. With almost all major components of the system interchangeable

among the three cameras. And with all three cameras using the forty Canon FD lenses and hundreds of Canon SLR accessories that have justly earned their reputation for excellence.

The scope of the Canon "A" System is unbelievably dynamic, unmistakably superior. It's for whatever kind of photography you are doing now or plan to do in the future. And it deserves a long and careful look.



Dalaback A

FD Lens



Power Winder A



Motor Drive MA



Battery Pack MA



NiCd Pack MA



THE OFFICIAL
35MM CAMERA OF
THE 1980 OLYMPIC
WINTER GAMES



Selected by
the U.S. Olympic
Committee



The Official Camera of
Madison Square Garden



78 OPEN
THE OFFICIAL PHOTOGRAPHIC CONSULTANT TO
19 U.S. OPEN TENNIS CHAMPIONSHIPS



USING THE A-1



The new Canon A-1 is more than just the most advanced single-lens reflex camera in history. More than a technological curiosity. It's a system approach within a single camera. An unmatched vehicle for the solution of the most complex

photographic problems with a truly remarkable simplicity in almost any case. And the heart of the A-1 is its six-mode exposure flexibility. That puts an end forever to arguments about which exposure mode is best in an automatic SLR by simply giving you everything.



Aperture priority shows pre-set aperture.

Shutter Priority shows pre-set speed.

1 Shutter-priority automation lets you select the speed you want to freeze action, prevent camera motion or purposely blur for dramatic impact. The A-1 selects the proper aperture in milliseconds.

2 Aperture-priority automation gives you total control over depth-of-field or lets you pick the aperture you prefer best. The A-1's shutter adjusts steplessly to give perfect exposure in any light.

3 Programmed automation is the A-1's unique all-purpose automation mode. It's great for shooting from the hip, adjusting aperture and shutter *both* over the camera's entire sensitivity range. And in an unmanned application it will continue to give correct exposures even when the lens' maximum aperture has been reached by adjusting for the correct shutter speed.

4 Stopped-down aperture priority makes the A-1 a *truly* universal camera, giving aperture-priority automatic exposures with anything you can mount on the camera—telescopes, microscopes, pre-set lenses, bellows and extension tubes. Anything.

5 Flash automation with the A-1 is absolutely the simplest anywhere. With either the Speedlite 199A or 155A all you do is mount the unit and turn it on. When the ready light is on (shown in the viewfinder) your aperture *and* shutter speed are automatically correct. If you shoot before the flash recycles, the A-1 reverts to regular auto exposure.



6 Manual exposure is just what the name implies. You set aperture and shutter speed for studio flash, special jobs or unusual applications—if there are any you can find that the first five exposure modes won't cover.

But the A-1's spectacular exposure control is only the beginning. Inside, all information is handled in

Six-mode exposure control.
System versatility.
Newer electronics for wider applications.



THE OFFICIAL
35MM CAMERA OF
THE 1980 OLYMPIC
WINTER GAMES

Canon A-1

digital form. Which means it handles a greater amount of information (that's why it has such exposure capability) as well as giving you a totally digital LED readout in the finder. A readout that's invisible until you turn it on and can even be shut off—while still letting the A-1 operate automatically. A readout that gives you a 7-LED display and tells you everything the A-1's doing. Changing every 1/2-second as the light changes. And varying in illumination intensity as the light varies. There's never been anything like it.

There's never been a camera that's handled like the A-1, either. All exposure functions can be controlled by the single AT dial, which locks to prevent errors. Different exposure modes are shown by symbol and color code, and only the appropriate scales are visible in each mode.

Exposure can be corrected as much as ± 2 stops in 1/2 stop increments and an exposure lock helps with really difficult lighting situations.

There's also a two-speed self timer, easy multiple exposures and a host of other control features that are a pure delight to use. With the new Motor Drive MA's smoothness and versatility (up to 5fps with Battery Pack MA) the A-1 is ready to handle any photographic challenge.

Whether you want to use the A-1 as a focus and shoot automatic SLR or explore the technological miracles it can perform, one thing is certain. You won't find anything like it anywhere for a long, long time.

USING THE AE-1



This is the one that started it all. A veritable flood of imitators. Yet the performance and cost efficiency that has made the AE-1 the *number one selling camera of its type* in

the world are still at work helping make it the most sought-after camera anywhere.

In your hands the AE-1 is a compact marvel of thoughtful engineering with the security and ease of shutter-priority automation. Most photographers agree that this type of automation is best for most photographers under most situations. The reason we could put it into the part of our FD lens designers. When you have the right lens mount, you don't *have* to build aperture-priority automation into your cameras. But that's another story.

The AE-1 is a model of direct, uncluttered photographic operation. Shutter speeds fall under your right index finger and apertures selected are clearly visible in the bright, easy-to-focus viewfinder. You can preview your exposure either with the shutter button or a special switch that falls under your left thumb. Just above this switch is a +1.5 stop exposure correction button that's just perfect for typical backlit situations.



Used with either the Speedlite 155A or new 199A, the AE-1 is the most automatic flash SLR ever. When the units' ready lights are on, your shutter speed is set to 1/60 sec. (no matter *what* the dial is actually set on) and your *aperture* is automatically set to the proper exposure for the distance range selected. All you do is mount the unit, switch it on and you're ready for perfect flash

The first computerized,
shutter-priority automatic SLR.
The last word in value.



THE OFFICIAL
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THE 1980 OLYMPIC
WINTER GAMES

Canon AE-1

exposures. And if you shoot before the ready light is on, the AE-1 will make a correctly exposed image in the normal auto exposure mode.

The AE-1's automatic operation is enhanced even further by the operation of the optional Power Winder A—a simple auto winder that can shoot single frames or sequences as fast as 2fps at speeds above 1/60 sec. The reason that the Power Winder is so simple—read reliable—is that most of the brains for its operation are in the electronics of the camera.

If compact, automatic, state-of-the-art electronic performance at an almost incredible price is what you're looking for, you'll find it in the AE-1.

USING THE AT-1



If you remember when through-the-lens metering shook the photographic world, you'll love the AT-1. It's the classic through-the-lens match-needle metering camera with a twist. Because it shares the technology of the "A" Series of Canon SLRs, it has up-to-the-minute performance features that bring this traditional photographic format into the present with a bang.

In use it's almost as simple as the AE-1, with a bright viewfinder and fast, accurate needle centering. And it shares the "A" Series' compactness, great handling and light weight. But what's really exciting about the AT-1 is its access to the great "A" Series of Canon accessories.

With the AT-1 you get to use the Power Winder A for singles or sequences and both Canon Speedlites, the 155A and 199A. On the AT-1, they set the speed automatically, you set the aperture. And the Databack A gives you date/data recording at the press of the shutter, interchanging with the camera back with a simple press of a button.



If match-needle metering is the way you like your photography—but you don't want to sacrifice modern performance—the AT-1 is just what you need.

THE WHOLE PICTURE

Of course, the Canon "A" System is part of something a lot bigger—the whole Canon system of SLR photography. In it you'll find



forty of the world's finest lenses. Everything from Fish Eye to Super Telephoto. And everything in-between. Lenses that have set standards for sharpness, contrast and freedom from aberrations. As well as ruggedness and innovation. Plus a line of accessories for almost every conceivable photographic job under almost any kind of conditions.

Whatever you're planning to do in photography, whatever you've done, you'll see things differently through the Canon "A" System of cameras and accessories. It's truly a New Generation of photographic performance. See it soon at your local camera specialty dealer's.

Match-needle metering with
electronic flexibility.
Conventional photography redefined.



THE OFFICIAL
35MM CAMERA OF
THE 1980 OLYMPIC
WINTER GAMES

Canon AT-1

Canon U.S.A., Inc., 10 Nevada Drive, Lake Success, New York 11042 • 140 Industrial Drive, Elmhurst, Illinois 60126 • 7000 Peachtree Industrial Blvd., Suite 200, Norcross, Georgia 30071 • 123 Peachtree Avenue East, Costa Mesa, California 92626 • Bldg. B-2, 1050 Ala Moana Blvd., Honolulu, Hawaii 96814 • Canon Optics & Business Machines Canada, Ltd., Ontario

☐ No matter what format or camera you use, no matter how many lenses you own or models you photograph, there is one sure-fire way to improve your results. That's right, regardless of your level of expertise, or lack of it, there is one thing anyone and everyone can do: learn more about light control and improve your lighting technique.

This does not mean that you must load up on expensive lights or have the use of a studio or even, for that matter, take over exclusive use of one corner of the house. Simply taking the time to understand a few simple principles that govern the behavior of light can be a help to many of us, and putting those principles into practice with available light may be the first step to better pictures.

Of the four main qualities of light (brightness, color, contrast and direction), contrast and direction have the most direct bearing on a discussion of light control.

Direction of light involves one of the simplest, most easily demonstrated principles of light—that a ray of light travels in a straight line. (There are exceptions to this statement, of course, such as refraction.) We can easily verify this each time we observe a shadow. The light source causing the object to cast a shadow will be in a direct line with the shadow and the object, on the opposite side of the object from the shadow. It is this principle in action that we observe and define as "front-light, sidelight, backlight, rimlight," etc. We may add light on the shadowed side of the object to fill in the shadow and illuminate more detail if we desire, but we must always work within this basic principle and learn to see and be aware of its effects.

We may use *additive* lighting in a couple of ways. First, we may literally add light to our lighting scheme by using either electronic fill-in flash or an additional constant light source on the shadow side of the object. The second option we have is to use a reflector on the shadow side to bounce light from the primary light source into the shadow area. In either case here, we are decreasing the contrast of the scene.

Contrast is the difference in brightness between the lightest and darkest portions of the scene. Good results cannot be obtained if the subject contrast exceeds the contrast range of the film. Our eyes often adjust for extremes in contrast, but film can't. An awareness of the contrast of a scene, then, is as essential as an awareness of light intensity or color. Too much contrast, however, is not the only deterrent to good re-

TOOLS OF the TRADE

KAREN SUE GELLER

LIGHT CONTROL

sults. Too little contrast can be ruinous as well.

Flat lighting, or lighting with little contrast, can lack impact and is often characteristic of photos taken in open shade. *Subtractive* lighting techniques, just the opposite of bounce light, can be used to increase contrast. Instead of adding light, we can take some away to create shadows by using a black reflector or gobo to block light. By shading part of the subject we force light



Larson reflectors simplify light control.

to strike our subject only where we want it.

This kind of basic light control can be accomplished with white and black cardboard—white for additive and black for subtractive light control.

Highlight and shadow are what the camera sees of light and what the film records of our subject. That which we perceive as shadow and highlight are determined by light's contrast and falloff. Contrast and falloff are controlled, in turn, by the size of the light source in ratio to its distance from the subject. In other words, although the sun is a very large light source, it is very, very far away and casts a hard, contrasty light. On an overcast day, however, the cloud layer itself becomes the light source. It is much closer to us and is effectively much larger than the sun in relation to our subjects so it casts a much softer, less contrasty light.

Larson Enterprises markets some versatile products that make total light control simple and easy and are more convenient to use than cardboard. Their Reflectasols® come in folding square and Hex models as

well as 3×6-foot models, all with six interchangeable fabrics ranging from highly reflective Super Silver to black.

Larson recommends that, in the case of this equipment, bigger is better—especially as an initial investment in lighting gear. Here's why: Up very close to the subject, the larger reflector acts as a soft light source like the cloud cover already described. And a large reflector can be moved back as far as necessary to give an effectively smaller, more directional light source if need be. If the reflector is small to begin with, you lose this advantage. The 42-inch models would, therefore, be the minimum recommended as a first reflector size, with smaller models added later as more sophisticated needs arise, contend Larson spokesmen.

The same Reflectasol frame that holds a reflective fabric to facilitate additive or bounce-light techniques will also hold black fabric to be used in subtractive lighting applications. It will also hold a translucent fabric for use in between direct sun and model for a less harsh rendition, since the larger and *closer* the light source, the softer it will appear in the finished photo. The gold and silver-blue fabrics available have useful applications for color as well. Gold can be used to correct the bluish cast often associated with open shade outdoors, and the silver-blue fabric converts the orangish cast of incandescent light to the natural color temperature of window light when using daylight film indoors. Silver and soft white reflective fabrics round out the selection available.

None of these basic light controls requires a light source other than Old Sol. Although the light source is free, the reflectors from Larson Enterprises range in price from \$27.51 for a 20-inch square black Reflectasol to \$109.71 for a 72-inch Hex Super Silver Reflectasol with all mounting hardware. Individual fabrics range from \$13.73 to \$46.11. Larson Enterprises, Inc., 18170 Euclid Street, Fountain Valley, California 92708, offers total light control with a full line of Strobasol® studio flash units, barn doors, accessory-flash-unit quick mounts, portable lighting systems and carry-alls.

For a more complete discussion of available-light shooting techniques, including both additive and subtractive techniques plus more, see *Available Light*, Petersen's How-To Photographic Library, \$3.95, at your local photo dealer or write Petersen Publishing Company, Book Sales Division, 6725 Sunset Boulevard, Los Angeles, California 90028. ☐



Nikkor lenses,
in the



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These are the eyes of Nikon. Through them you can create images of beauty... drama... action... emotion... in endless variety. Magnificent images that are the supreme reward for your involvement in Nikon photography.

These are the lenses created by Nikon to fulfill the creative potential of your camera as no others can. For, each is designed to be an integral element in the chain that leads to the legendary Nikon image quality... the superlative sharpness and consistent color fidelity that make Nikkor lenses the standards of excellence.

You never need to compromise on this quality, no matter how you want to express your visions. There are nearly sixty Nikkors, from 6mm to 2000mm focal length, to help you do it in an infinite number of ways.

To assure their consistent superiority, Nikon begins with its own optical glass, precision ground and polished to near-perfection. Designs them with the ingenuity and technology that created such advances as "floating elements" to improve the performance of wide angle lenses... ED glass, to make telephoto lenses sharper than ever before possible... internal focusing, for speedier handling and reduced size. And enhances them with multi-layer Nikon Integrated Coating, itself another Nikon innovation.

But, all this is not enough unless it is matched by the highest degree of mechanical precision... the standard to which every Nikkor lens is engineered. Every Nikkor diaphragm stops down accurately to any selected aperture, even in high-speed motor drive operation. Every focusing system retains its silken smoothness through years of professional use. And, every Nikkor mates precisely with your camera's lens mount and automatic controls, even after being attached and removed thousands of times.

Nothing less than Nikkor is satisfactory for your Nikon. And, no other lenses can instill in you the confidence of Nikon... the supreme inspiration that's so vital in your pursuit of fine photography.

See the vast selection of Nikkor lenses at your Nikon dealer (you'll find him in the Yellow Pages). Ask him also about the traveling Nikon School. Or, write to Nikon Inc., Department N-42, Garden City, New York 11530. Subsidiary of Ehrenreich Photo-Optical Industries, Inc. (In Canada: Nikon Div., Anglophoto Ltd., P.Q.)

vital elements Confidence of Nikon

☐ I've decided to stop conning Evan Nosscoff. That's my New Year's resolution. It means giving up two free bottles of fine whiskey every year, but in the holiday spirit that's what I'm going to do. I'd better give you some background information.

Evan's a top-notch photojournalist who consistently turns out great pictures. He has to. He's a free-lancer working out of Sacramento. That's California's capital city, and much of Evan's work involves publicity coverage for some of the state's, and sometimes the nation's, biggest politicians. Their public image and the votes they seek to garner are often directly influenced by the photographs Evan produces. Politicians don't take chances when it comes to winning votes. That's why Evan's work has to be great. If it weren't, he'd have no clients in Sacramento.

Evan not only practices photography, he also teaches it. That's where I and the con come in. Twice a year we co-teach a special weekend seminar on photojournalism, and twice a year Evan loses our standing bet and has to give me a bottle of Jack Daniels. The bet's a simple one, but it will make more sense if I explain how the seminar works.

On the opening day we meet the participants for the first time and have a short introductory lecture. The students are then given a story assignment and immediately go out to shoot it. Their film is processed and printed that night and the pictures are reviewed the next day. The schedule's a tight one, and consequently the students are instructed to arrive at the first meeting fully outfitted and ready to go to work. That was the situation when I proposed the bet at the opening of our first seminar.

"Evan," I said, "there are about 20 photographers here. The odds are four to one against it, but I'll bet a bottle of booze that I can pick two of the top ten right now."

"Are they people you know?" asked Evan.

"No," I answered. "I've never met any of them before and I've never seen any of their work."

"You don't know them and haven't seen their work and you're willing to make an even-odds bet that you'll pick two of the top ten?"

"Right. Just by looking at them."

"You've got a good eye, Ben, but that's pushing it! You're on."

I immediately pointed to two students. "I'll pick those two. I don't know their names but they're my choice."

Sure enough, when all the assignments were in the next day, Evan

SELF-assignment

BEN HELPRIN

**JACK DANIELS,
I'LL MISS YOU**

had to agree that the students I'd chosen easily placed among the top ten in creating pictorial excitement.

"How did you do it?" Evan asked, as he handed me my bottle.

"Instinct, Evan. Just plain instinct."

And so it goes. We always make the same bet and I always win the bottle. I'd be surprised if I didn't. The bet's almost a sure one and the odds are stacked in my favor. Why? Because most of the students show up in fashionable, fairly expensive cloth-



The use of an unexpected viewpoint produces visual impact in this shot of an otherwise exciting situation. Tim Flynn, a photography student, produced this photograph to illustrate this month's column, which involves unusual camera angles and unusual bets. How do they fit together? Read the story and see if you can guess the answer.

ing. It's the first time they get to meet each other, and, naturally enough, they want to look their best. Only a few of them are wearing clothing that, though clean and neat, I know they won't mind ruining if necessary. Those are the ones I pick. It's a simple as that. Here's why:

An important device in creating an exciting picture concerns the angle of view. The standard, eye-level viewpoint is often repetitious and dull. Changing that viewpoint can help to produce interesting pictures of seemingly uninteresting situations because a change in camera angle affects both the composition and the pictorial dynamics of the shot. Furthermore, an unusual viewpoint is, in itself, pic-

torially exciting. That's why radical camera angles are considered to be effective picture-taking tools.

A photographer who wants to effect major changes in the angle of view must be prepared to climb trees, crawl on the ground, and perform a lot of other physical maneuvers that are ruinous to fine clothing. Our students are supposed to arrive at the first meeting fully prepared and ready to shoot. It's my guess that those who are fashionably and expensively dressed are going to be at a disadvantage when a radical camera angle is needed to produce an exciting shot. So far, I've been right. Evan knows as much about camera angles as I do, but when it comes to our bet, he keeps looking for a complicated answer as to how I make my "instinctive" predictions. Consequently, he overlooks the simplest solution of all. I can understand why. Evan knows how devious I can be and he's sure I'm lying when I say my choice is based on instinct. I'm not. Good photographers change their angle of view without consciously thinking about it. The con is that I'm referring to the students' instinct, not my own!

How about you? Do you automatically and instinctively change the angle of view to create pictorial excitement? Take a look at your past work. If almost all the shots are taken from an eye-level viewpoint, you're missing out on an important tool and should try the following assignment:

Put a fresh roll of film in your camera and find a pictorial situation that interests you. Take your first shot from an eye-level viewpoint. Then take a minimum of four more shots and in each instance drastically change the vertical angle of view. Repeat this procedure in at least five different pictorial situations. View the final prints and note how the change in angle affected the dynamics of the picture in each situation. This conscious analysis will heighten your visual awareness and allow you to recognize the important changes effected by altering the angle of view. Repeat the exercise a number of times and you'll soon learn to choose the best angle instinctively.

Well, I've fulfilled my New Year's resolution, and I hope that Evan forgives me. My only regret is that he won't be giving me any more Jack Daniels. I'll have to buy it for myself now, and though it's well worth the price, it always seemed to taste better when it was free. On the other hand, Evan might not see this article, and resolutions do have a way of petering out. Maybe I won't miss that bottle after all. ☐



There's never been a better time to buy those new Nikkor lenses you've planned on. Because, now Nikon will pay you a spectacular cash rebate ranging from \$25.00 to \$150.00 when you purchase any of these 32 most-wanted Nikkors from February 1 through April 30, 1979!

These are the lenses that have made photographic history in our time. Like all Nikkors, each is crafted from Nikon's own optical glass — the world's finest. Each features exclusive multi-layer Nikon Integrated Coating for exceptional flare-free crispness and color purity. Of course, each operates perfectly with all Nikon/Nikkormat meter systems. And, many are among the smallest, lightest optics of their types.

Act now, while your Nikon dealer's stock of these superb lenses is most complete. Check off the Nikkor lenses listed in which you're most interested and hurry to your Nikon dealer to get the full details and make your purchase. We'll rush your rebate check direct to you.

You can purchase as many of the lenses listed as you want and get a big cash rebate from Nikon on every one. The more you buy, the greater your rebate and the greater your enjoyment of 35mm photography at its finest!

Offer extended only through participating Nikon dealers in the United States, Puerto Rico and U.S. Virgin Islands on designated new Nikkor lenses with official Nikon Registration for One-Year Limited Worldwide Warranty (Part 2A), imported and sold by EPOI and purchased and delivered to a retail customer between February 1 and April 30, 1979. Offer void where prohibited, taxed, or restricted by law. For further information, visit your Nikon dealer. Nikon Inc., Garden City, New York 11530. Subsidiary of Ehrenreich Photo-Optical Industries, Inc. ㊤

ELIGIBLE NIKKOR LENSES

Product	Description	Rebate
1113	18mm f4 AI	\$50
1114	20mm f3.5 AI or f4	\$35
1117	24mm f2 AI	\$50
1116	24mm f2.8 AI	\$30
1119	28mm f2 AI	\$50
1120	28mm f2.8 AI	\$40
1121	28mm f3.5 AI	\$30
1129	35mm f1.4 AI	\$50
1128	35mm f2 AI	\$30
1127	35mm f2.8 AI	\$25
1151	85mm f2 AI	\$35
1156	105mm f2.5 AI	\$40
1159	135mm f2 AI	\$100
1162	135mm f2.8 AI	\$40
1160	135mm f3.5 AI	\$30
1167	200mm f4 AI	\$40
970	400mm f4.5 Tele	\$100
950	500mm f8 Reflex	\$75
952	1000mm f11 Reflex	\$150
1022	28mm f4 PC	\$50
1026	35mm f2.8 PC	\$40
1140	55mm f3.5 Micro AI	\$25
1154	105mm f4 Micro AI	\$50
980	200mm f5.6 Medical AC	\$150
981	200mm f5.6 Medical DC	\$150
1139	58mm f1.2 Noct AI	\$75
1180	28-45mm f4.5 Zoom AI	\$75
1178	35-70mm f3.5 Zoom AI	\$75
1181	43-86mm f3.5 Zoom AI	\$40
1182	50-300mm f4.5 Zoom AI	\$100
1184	80-200mm f4.5 Zoom AI	\$75
1086	200-600mm f9.5 Zoom	\$150

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Announcing record-breaking Cash Rebates on Nikkor lenses

BRONICA ETR: The System that top professionals are turning to...

What camera system did Executive Art Director Tom Staebler use for this unforgettable Playboy magazine cover shot? The Bronica ETR-System including a Motor Drive and auto exposure finder (each a 'first' in medium format photography). As Tom puts it, "After ten years of designing and shooting Playboy covers, I knew just what I wanted in a camera - and the ETR-System seems like it was made to order!"

Professionals in many fields are turning to the Bronica ETR-System. Because only Bronica combines an ideally-proportioned 4.5x6cm negative - nearly 3x larger than 35mm, with the advanced capabilities so vital to professionals...

PROFESSIONAL MOTOR DRIVE. The first accessory motor in medium format for cordless, automatic firepower in single, or continuous modes... remote control and AC capabilities, too. Something no other 4.5x6cm offers...

PROFESSIONAL EXPOSURE AUTOMATION. Bronica's exclusive AE-II Finder with Silicon photo cells automatically and electronically sets the precise shutter speed for best exposure (from 8 sec. to 1/500th steplessly) with any ETR lens or accessory... Activates brilliant LED shutter readout in finder... Makes superior fill-in flash shots incredibly easy.

PROFESSIONAL INTERCHANGEABLE MAGAZINES. Choose 120 (15 exp.), 220 (30 exp.), even Polaroid™ backs for instant reloading, mid-roll film change, accurate previews; great for multiple exposures too. Something no other 4.5x6cm makes possible...

PROFESSIONAL FLASH SYNCH. Leaf shutters in each lens give strobe synch at all speeds... camera-mounted shutter speed dial and PC outlet give added convenience.

PROFESSIONAL IMAGE CONTROL. Choose from five precision finders plus quick-change focusing screens for composing/focusing accuracy. Pick from a range of multicoated, Zenanon lenses from 40mm to 250mm, a zoom and more to come.

CHOICE OF SYSTEM CAMERAS. For widest versatility, the Bronica ETR-S; for extra economy, new Bronica ETR-C offers all ETR-System facilities, features, and capabilities but with pre-loadable 120 and 220 inserts rather than interchangeable magazines - at remarkably low cost.

Professionals everywhere are turning to the revolutionary Bronica ETR-System. Take your turn today, at your Bronica dealer. Or write for Lit/Pak P-50.

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BRONICA ETR
Ideal Format, Ideal System

□ A colorful beacon of photography guided by a kind of Hungarian wizard beams out of a landmark townhouse on Fifth Avenue in New York City. The International Center of Photography, the realization of Cornell Capa's dream to create "a home for photographers and photography" is "the lighthouse on 94th Street," as Cartier-Bresson once called it. But unlike other lighthouses, ICP not only beams out signals, it receives them too. Like a futuristic satellite control center, ICP is a master in the complex system of message exchanges. It is a model, a pilot institution, that "has changed the shape of the American photographic scene," says director Capa.

That is not to say other centers do not exist. Indeed they do. But most sprang into life only since ICP began. "We are the example that it can be done," Cornell asserts proudly.

Capa's pride is well-earned. It took hard work, commitment, sweat and the Capa wizardry to bring the infant museum through its latest birthday. Now in its fifth year, ICP is finally on terra firma. A \$200,000 National Endowment of the Arts grant has provided better financial security and, more important, "substantial recognition of ICP's impact, viability and permanence," says Capa.

From Buffalo to Bakersfield to Tokyo, many are benefiting from its far-reaching programs. Perhaps the most pervasive influence has poured through ICP's educational veins in an eclectic stream of lectures, dialogues, workshops and forums. Each semester bubbles with stimulating topics and programs from the usual (darkroom courses) to the unusual (dialogues on controversial issues). And many classes are approved for academic credit.

But the center's educational light travels way beyond home base. Lecturers have steadily trickled out of the teaching programs and now tour the country independently. Past participants and school leaders have initiated similar programs in their own communities. And photographic watchdogs everywhere who strive to keep paws on the pulse of the medium find the ICP brochure an invaluable barometer.

Admittedly, I've gleaned ideas on trends and concerns simply by reading ICP's course listings. The topic of the "Open Forum" (March 24), "Is There a New Photojournalism?" is a revealing example. I may not attend the forum, but from the brochure alone I've already absorbed the notion of a "new" direction. With friends or associates I can even pur-

In sight PEGGY SECILFON

SIGNALS FROM ICP

sue the question on my own.

Fortunately, many programs do take place on weekends. In fact, when the weekend workshops were instituted, a man in Seattle who'd just heard that Ernst Haas was teaching one called to find out if he could still register. The man flew in from Washington for a weekend at ICP with Ernst Haas!

That might sound extreme, but having attended several of the two-day workshops, I'll attest that each



The home that Capa built. It has a powerful beacon that reaches everywhere and can guide anyone to becoming a better photographer.

has been highly rewarding. It's a rare experience of informal yet intensive interaction with outstanding experts and artists in the field.

Even more intensive is the internship program, which is reserved for "qualified individuals who wish to gain professional expertise through photographic studies." The multidisciplinary program—full-time for one or two years—is a truly eye-opening exposure to all facets of ICP and photography itself! It is particularly appealing to college students.

Education hardly stops with course listings and internships. The ICP beacon is capable of transmitting an information satellite into your very living room via *Images of Man*, an audio-visual series (available by mail). These illuminating photographs with narration explore life of 20th-century man and include such programs as Roman Vishniac on the life of East European Jewry 1935-1939; W. Eugene Smith on "Between Birth and Death"; and Henri Cartier-Bresson on the "decisive moment."

"ICP is a place where national and international photographers have a place to be shown," affirms Capa.

Another ICP role: It is a showplace for both emerging and well-emerged photographers. It is an excellent platform for having work seen and for seeing work. Some of the exhibits on this year's horizon are: "Self-Portrait: Japan," mirroring Japan of the '70's; "Recollections: 11 Great American Women Photographers"; and a Cartier-Bresson retrospective. Though exhibits are mounted in New York, a book or catalog accompanying the exhibit is usually available. And some chows eventually travel. ICP currently has about ten circulating exhibits in schools, museums, temples. (A list and book of procedures is available from ICP.)

ICP's resources can be tapped from anywhere; consider the Museum Shop, which sells books, posters, catalogs and portfolios. With the aid of the Museum Shop Catalog (\$1 for nonmembers), you can shop from your easy chair in Peoria. Most items are discounted to members. Annual memberships are: general member, \$25; senior citizen/student, \$15; associate (outside a 100-mile radius of New York City), \$25. Members receive announcements of all programs, publications (including the quarterly *CenterNews*), the Museum Shop Catalog, discounts, and more.

Finally, the ICP light will be shining on terra magnifica come June when ICP and UNESCO launch a grandiose cultural convocation of photography in Venice. "Venezia '79—La Fotografia" will be the Italian translation of ICP; and from June 11 to September 16 it will feature over 42 master workshops of one-week duration, each taught by world-renowned photographers, educators and historians. Events will be open to everyone but registration is limited. Venice will be alive with exhibits, lectures, symposiums and other events. What could be a more exciting backdrop for this photographic happening than this visual paradise?

Back to earth. Several weeks ago I moderated a panel at the Japan Camera Show. A middle-aged man asked how he could learn the craft of photography. I mulled over the many answers—reading books and magazines, shooting, studying with photographers, talking with friends at similar levels, taking courses/workshops, seeing exhibits, attending lectures. . . . Suddenly a "lighthouse" beacon glinted in my eye. Message received. There's one multifaceted answer: ICP!

The International Center of Photography is located at 1130 Fifth Avenue, New York, New York 10028, (212) 860-1776. □

□ Every year thousands of books containing an infinite variety of subject matter hit the stalls. A great many of these are illustrated, some lavishly, and one might thus conclude that the book-publishing field is an excellent photographic market and certainly worthy of pursuing. In a manner of speaking this is true, for many photographers and/or photographer/writers have made good money by directing part of their energies toward the book mart. On the other hand, the financial rewards often are not as great as one might be led to believe. That being the case, let's take a look at the book publishing field—the whys and wherefores of getting into it and some of the reasons why you should be well-informed before taking the plunge.

Producing a book or, for that matter, simply illustrating it, is extremely time-consuming. Becoming involved with a book requires a tremendous amount of patience, dedication, talent, know-how and a huge amount of time. The above just might conceivably outweigh any and all monies you would receive in the long run.

For the sake of discussion, let's assume that you have an idea for a book, and, better yet, a publisher is interested in publishing it. A number of things must first be ironed out, and I'll take them on in the order of practical importance. First there's the matter of the advance and how much you can expect to receive. Advance payments vary from \$2000 to \$5000. While a book for children may bring \$2000, a book for adults will pay \$2500 to \$5000. Some publishers pay the whole amount upon the signing of the contract, some pay half the advance at the outset and the balance upon completion and delivery of the manuscript and/or illustrations, while some publishers pay in thirds. On the other hand, take a prolific writer of best-sellers—he or she would probably get \$100,000 up front by simply scribbling a synopsis on the back of an envelope.

In addition to the basic \$2000-\$5000 range, advances vary from publisher to publisher and author to author. The nature of the subject matter also plays an important role. In a nutshell, everything is negotiable.

Royalties are also subject to negotiation; nonetheless, they also display a particular pattern. Quite often publishers will pay royalties on an escalating basis, i.e., 10 percent for the first X thousand books printed and sold, 12½ percent for the next X thousand books, and finally, 15 percent for the balance of books that

WHERE the ACTION IS

DAVID SUTTON

THE BOOK MART

follow. Avoid royalty arrangements that are based on the net price, the price for which the publisher sells the book to the distributor or bookstore. It is far wiser to opt for the retail sales price, otherwise known as the cover price. You can expect royalty payments twice a year, and they generally cover the first and last halves of the year.

Some publishing houses work on a one-shot basis, which means they produce one print run and don't go



If you write and/or illustrate a book about sports and you also provide the cover shot, will you receive extra payment? Yes and no, depending upon how your contract is written. See text for more information concerning books, advances, royalties, etc. ©David Sutton

into second or more printings no matter how successful the book sales may be. This type of arrangement should be avoided, since all you can look forward to is the original advance with no additional royalties forthcoming.

Next on the agenda is reprint rights. Here, you agree to convey to the publisher the right to sell your work to another publisher who will reproduce your book and offer it for sale, generally at a lower sales price. The original publisher might sell reprint rights for the lowly sum of \$1000, which he will split down the middle with you 50-50. If your book had been overpriced originally and was not selling well, you might find the reprint editions to be a good deal, as your royalties will jump up due to increased sales because of

the reduced cover price.

As for the copyright and who owns it, request that your book be registered and copyrighted in your name. And should the book happen to feature a dust cover or book jacket that includes any of your art work, further request that your copyright be imprinted on the jacket itself or, at the very least, have it appear prominently within the opening pages. If your book does have a jacket cover containing one or more of your photographs, the question remains as to whether or not you can expect additional payment for the illustration(s). As a rule there is no additional payment for cover art unless you arrange for such payment in advance and have it put in your contract.

As for collaborating with a writer whereby he/she provides the text and you provide the photographs, the arrangement is usually on a 50-50 basis, with both of you sharing equally in the advance and royalties. However, be certain that you receive equal credits and/or bylines. Request a legal study of your associate's contract to be certain there are no discrepancies in which he/she might be favored over you. Your request for equality is a precautionary measure, since it is possible that he or she might only be providing brief literary displays per chapter or only special captions of your material. In other words, you may be the major contributor of the book, which would entitle you to more than the 50-percent share in the conventional arrangement. Perhaps 60-40 or 75-25 might be more appropriate.

The foregoing are just a few of the things that must be taken into consideration during the course of producing a book or being one of its contributors.

There are other legal aspects of book production you should be aware of, for example: What provisions are made in the event the publisher wishes to issue a revised edition and you are not available at the time to be the sole source of such a revision? And what of additional benefits and rights of ownership such as motion picture, video tape recording, educational uses and rights? These and many other questions will be answered next month as I continue to explore the book publishing field, the wording and legalism of contracts, plus the situation of being simply one of many contributors and not having the foggiest notion as to how much you can expect or charge for a book cover or inside shot. One thing is certain—you will get the facts as I know them and have experienced them. □

Now You Can Rent Your Pictures!

Whether you have thousands of pictures on file . . .
or just a few —

Whether you are a pro or an amateur
producing good images. . .

**Associated Photographers
International announces a
new concept in stock photo
agencies —**

COMPU/PIX/RENTAL

Of the millions of photos published each year, a significant percentage are rented through stock photo agencies. They are generally rented for one-time use by news media, book publishers, advertising agencies, greeting card, poster, record album, audio/visual companies etc.



Stock photo agencies rent "every-day" type pictures. Like this one (B/W), which earned \$50 for photographer David Cherkis of Los Angeles. It was used in a textbook.

Photographs are worth from \$25 to \$750 (B&W) to over \$1000 (Color) for one-time use — and more for extensive use, and re-use. Some photographers receive checks every month for pictures they shot years ago!



A stock photo agency rented this picture in color for a calendar. The photographer, Thomas Arledge of San Diego, CA., shared the \$400 payment.

Surprisingly, pictures that rent are often of ordinary subjects, many done by photographers with modest skills.

Until C/P/R there were a number of drawbacks in dealing with stock photo agencies. Most require that you leave your original pictures in their files for up to 5 years! To have your pictures considered you should be producing a large number of pictures regularly. And when a picture is rented, you split 50/50 with the agency.

Now C/P/R removes these obstacles and opens to you the world of extra income from renting your pictures.



As a 35mm slide this picture paid Mike Grogan of Greensboro, NC \$175 for use as a poster. Frames from the same shooting rented for an additional \$375.

C/P/R does not keep your pictures!

Instead information regarding them is fed into the C/P/R computer photobank. Under this arrangement, **not only do you not part with your pictures until they are rented, but you can market them elsewhere — including through other stock photo agencies!**

All photos shown were rented through stock photo agencies.



Audio-visual producers are another market serviced by photo agencies. This slide was rented 3 times and netted \$350 for George Thompson of Houston, TX. George has received \$980 from rentals over the past few years.

When picture users contact C/P/R (as a result of our promotions to editors, researchers, art directors etc.), our computer will match their needs to the C/P/R photobank. **We will then put them in direct contact with the photographer — who could be you!**

You make the deal (with guidelines supplied by C/P/R). **No middlemen to cloud the issue and inflate the price.** No 50/50 split — C/P/R receives a small fraction of your rental fee — paid when you are paid.

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Show Me . . . Send me your comprehensive kit on renting my pictures . . . prices paid, model release info, types of pictures needed etc. Enclosed is \$1 with the understanding that it is applicable toward my C/P/R registration.

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PG-1

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The Computerized Stock Photo Agency

COMPUPIXRENTAL

Division of Associated Photographers International

FOCUS ON FOCUSING

I'm writing in response to "Talking Tech" No. 8, by David Brooks, which appeared in the August, 1978 issue of PhotoGraphic Magazine. This was a very informative and excellent article that represents the style, type and quality that has made PhotoGraphic the best photo magazine in America.

In the section on focusing, I thought Mr. Brooks could have added a little information concerning how to get both near and distant objects in focus at the same time. The results of the method I use and the method Brooks described are really the same. The difference is actually a matter of procedure. The method is called "hyperfocal focusing."

With hyperfocal focusing the first step is to establish exposure information. When the f-stop has been determined, place the infinity mark of the focusing scale opposite the f-stop being used on the depth-of-field scale of the lens barrel. On most lenses this would be on the right half of the depth-of-field scale. By locating the f-stop being used on the left half of the scale, you can then locate the minimum distance at which objects will be in focus. If this is not close enough, adjust your exposure so that you can use a higher f-stop and repeat the above procedure. This will result in an increased depth of field.

Gary L. Croskrey
Traer, Iowa

I agree that the focusing method I described and your method achieve essentially the same purpose. I chose not to use the term "hyperfocal distance" or base my method on the formula that describes it since I believe more photographers will use the functions of the distance and depth-of-field scales to focus effectively if those functions are understood in simple, practical terms. Both methods provide a means of focusing that takes into account near and far objects to be included in the depth of field for any aperture selected to make an exposure. The subject of that particular "Talking Tech" was intended to cover some of the other factors that affect sharpness besides focusing. I hope the next time around your area of interest receives a larger share of the pie!—David Brooks

STUDENTS, TAKE NOTE

Every student of photography should read and then reread Ben Helprin's "Self-Assignment" column in the December, 1978 issue, "Show Inside, Outside." This was a super

other VOICES

column. You should have printed the photo full-page.

Keep it up, Ben, you're doing great!

Bill Weeks
Miami, Florida



WE ERRED . . .

I believe an error has been made in the caption for photo No. 1 on page 102 of the November, 1978 issue of PhotoGraphic Magazine. To support this contention, I enclose a photograph of the former Coast Guard boat house in Island Beach State Park, South Seaside Park, New Jersey. This boat house was torn down in the winter of 1975 or 1976.

John C. Ferriday
North Brunswick, New Jersey

. . . AND STAND CORRECTED

Should anyone write you regarding the caption for my photograph (see November issue "Gallery '78"), the one used was for another photograph I sent and not the one printed. It should have read: "Storage building on Island Beach State Park, New Jersey; shot using a fog filter and Kodak Ektachrome-X Film."

Carl J. Petruzzelli
Woodbury, New Jersey

AN EYE FOR AN EYE

I have just received the December issue, and without a doubt Connie Moberley is my kind of photographer. Her photographs certainly added class to your magazine, and I would like to see more of her work. To use a cliché, I wish I had her eye, but I would be thankful if I had half the eye that she has.

Ralph G. Abbott,
Anaheim, California

On Owning This Hasselblad Flight Bag Without Paying For It

It is a bag that has been especially made for Hasselblad in Sweden.

It is fabricated from a smooth, closely woven canvas, in a medium blue, with the Hasselblad name emblazoned on both sides.

There are three separate storage compartments enclosed by marvelously sturdy Swedish zippers. And it comes with a shoulder strap as well as a handgrip.

Since it measures 16½" long by 11" high by 8" deep, you can toss anything into it from odds and ends of camera gear to a change of clothes or even sports equipment. Yet it's compact enough for you to carry it on board a plane as hand luggage.

To own this flight bag without paying for it, simply buy any new Hasselblad camera, camera body, or accessory lens—anytime between January 1 and March 31, 1979.

Then send the completed registration card and bill of sale to:

Hasselblad Flight Bag
Braun North America Photo
55 Cambridge Parkway
Cambridge, Mass. 02142

Requests must be postmarked no later than April 25, 1979.

We will then send you your Hasselblad flight bag absolutely free.

Offer applicable to retail customers only.

Void where prohibited, taxed, or restricted by law.

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HASSELBLAD®



On Photographing a Monster

It hates being photographed. It glares balefully at the camera. It sulks, fidgets, pouts.

It is that most fearsome of creatures, a perfectly normal four-year-old child.



The photographer, wise in the ways of distracting difficult subjects, abandons his camera. He wanders about the studio, talking and gesturing. The monster, no longer feeling threatened by the evil eye of the lens, relaxes and becomes once more the sweet child its mother knows.

From time to time, the eye of the camera blinks. There is a quiet whirring of an electric motor, and the camera blinks again. Yet the photographer is nowhere near it.

An Ingenious Little Dial.

The camera is a Hasselblad, the motor-drive 500EL/M.

A dial on the camera is set at "SR." This prereleases the entire reflex system. At the end of a 20-foot extension cord, the photographer holds a release mechanism. When triggered, it operates the leaf shutter without a moment's delay, thus reducing the risk of "eye blink" from the subject and delivering a higher number of useable photographs.

There are four other settings on this dial: Single-frame in the normal mode. Continuous, automatic firing for as long as the release is held down. A single frame in the prereleased, speeded-up mode for one frame only. And continuous, automatic firing in the speeded-up mode at the rate of one frame every 8/10th of a second.

Hasselblad Versus 35mm.

Why is this photographer not using one of the many excellent motor-drive 35's for this assignment?

One compelling reason might be the size of the Hasselblad negative. Each is 2 1/4 inches square, almost four times the area of a 35mm frame. (See box, below right, for actual size.)

To make an 11 x 14 print of the child, one would have to enlarge a 35mm negative 11.6 times. A comparable Hasselblad print requires only a 7-times enlargement. The ability to hold contrast is phenomenal.

Then there is the camera's leaf shutter. Unlike the shutter of a 35mm camera, it is fully synchronized for every type of flash at every speed up to 1/500th of a second.

Hasselblad Versus Others.

But why a Hasselblad when there are less-expensive alternatives? Why did eight out of ten top professional photographers surveyed name Hasselblad as the medium-format camera used in their work?

Consider this: The Hasselblad System makes available no less than 4 cameras, 21 lenses, 8 viewfinders, 9 film magazines (including Polaroid® backs) that give you a choice of anywhere from 1 to 500 exposures, and a staggering array of accessories.

A total of 332 pieces.

No other system that exists

today in the medium-format field can muster more than a fraction of that number of pieces.

For that matter, no other system offers three different formats—6 x 6cm, 6 x 4.5cm, and a 4.5 x 4.5cm superslide format for showing in any 35mm projector.

A lavish brochure on the 500EL/M and other Hasselblad cameras is available free if you write: Braun North America, Dept. PEP3H 55 Cambridge Parkway, Cambridge, Mass. 02142—a division of The Gillette Company and exclusive marketer of Hasselblad in the U.S.

It is actually possible to custom-build for yourself over 100 different Hasselblad cameras for almost every imaginable photographic situation—from the most simple of family snapshots to the most sophisticated of professional work.

Is it any wonder that the space program came to Hasselblad for the equipment which was to record man's first voyage to the moon?

HASSELBLAD®



The Motor-Drive Hasselblad 500EL/M, made in Sweden. The standard lens is a multi-coated f2.8 80mm Zeiss Planar.

□ "What's in a name?" asks Juliet of Romeo in one of the most romantic scenes in Shakespeare's play, "That which we call a rose by any other name would smell as sweet."

"Call me but love, and I'll be new baptized," her ardent young paramour replies.

Many of us feel the same way about the movies we make. Virtually every amateur film is a labor of love, and it doesn't really matter what we call our filmic endeavors; it's the content, not the title, that's important. In fact, the word itself, "amateur," is derived from the Latin word *amare*—"to love," rendering Romeo's appellation as appropriate for movie-makers who practice their craft for the sheer joy of doing it as it is for star-crossed lovers.

But even though we refer to our work as simply "The Movie" throughout most of the production, there comes a time, usually near the end of the filming and editing process, when the piece must finally be named, its title carefully lettered out and filmed. Effective titles can contribute a great deal to the impact of any film.

A clear, brief title at the beginning of the movie gives your audience a clue about the tone of the film as well as giving the filmmaker a way to refer to the work. Title credits at the end acknowledge the contributions of those who took part in the production. In addition to presenting the name of the film and crediting the cast and crew, titles can also be used to fill in gaps in the movie story, to build up scenes, to break up long scenes in silent productions, and to clarify the action in instructional films. Information that is difficult to convey by pictures or narration—figures, dimensions and dates, for example—can be clearly shown with titles or graphic art.

The main or lead title should be appropriate for the film's theme, mood and tempo and should be directed to its intended audience. Many films also include an introductory or prologue title to present background information and to explain or clarify the film to follow. Silent movies often use scene titles with written narrative to describe the action. Dialogue is printed between quotation marks to indicate what characters are saying to each other, and titles preceding some sequences fill us in on parts of the story that weren't filmed. In any case, titles should be kept simple in design and message. They must never overpower the content of the film.

Although motion picture titles can

FOCUS ON FILMMAKING

MARKENE KRUSE-SMITH

WHAT'S IN A NAME?

be made almost any size, production of titles can be simplified by using title cards with a standard format that's in the same ratio as the film format so working area and overall dimensions correspond to the camera frame. A title-card size of about 10 x 12 inches is standard.

Hand-lettered titles are easy to make, and they can give a movie a delightful personal touch. They're especially effective with animated films, since handmade titles tend to



Hernard's plastic letters can be affixed to many surfaces to provide instant titles and credits for movies, no matter where you happen to be filming.

be whimsical rather than slick, and they fit well with the mood of a movie made by hand. Whether they are drawn with a crayon, lettered with Magic Marker pens or painted in bold splashes with colorful poster paint, your primary concern when designing the titles should be legibility. A message that's unintelligible or difficult to see and understand will be more frustrating than useful for your audience.

Printed titles can also be very effective, and they usually have a more polished, professional look about them. Print shops stock a number of typefaces in a variety of sizes. There are several typesetting methods, but whichever method you choose, the type style you select should be simple and bold. Elaborate, ornamental styles embellished with curlicues and decorative serifs should be avoided because despite the exotic attraction of such faces, they're hard to read.

A third option to consider along with hand lettering and printed titles is to purchase one of the lettering devices available at art supply stores. Uniform, professional-looking letters

are available in a variety of different type fonts. Transfer lettering is usually printed on transparent matte acetate or vinyl polyester film sheets that allow the user to position, move and adjust each letter individually before burnishing it onto the title card. It takes a good eye, a straight edge and equal amounts of concentration and patience to apply these letters so they're lined up properly and evenly spaced, but the result of your diligent efforts can be a set of really slick, professional-looking title cards.

Yet another possibility, for filmmakers who prefer the expediency of having someone else make the titles, is to order hot-press lettering from a commercial motion-picture title shop. Opaque letters are supplied in many typefaces and colors and are easily applied to most cards, background materials and acetate gels. Of course the cost is quite a bit higher than for any of the do-it-yourself methods, but the neat, clean results may be worth the expense, especially if you're inept at detail work or when you need titles that match the professional caliber of the rest of the film.

Plastic, three-dimensional title letters are used extensively in amateur filmmaking, and these may be the best alternative yet. Available in sets featuring several different styles and sizes, these white, self-adhesive letters can be attached to any smooth, hard, dry surface. Several such title letter sets are made by Hernard Manufacturing Company, Inc. The letters can be mounted on doors, luggage, road signs, windows, etc. and used over and over again. They can be spray-painted any color. I have a friend who takes a plastic title letter set along with his super 8 camera whenever he takes a vacation that includes traveling by car. When he finds a particularly scenic spot, he affixes appropriate title letters to a car window and shoots his title against the majestic scene behind the glass to obtain a dramatic effect that looks like it's superimposed.

The largest Hernard kit, the Professional Title Letter Set, Model No. DP90, includes glass panels and titling stand, colored backgrounds and a translucent sheet for rear projection, plus numbers, stars and other special characters. Letters are 1 1/4, 3/4 and 1/2 inch in size, upper and lower case, for quite versatile titling. Hernard Title Letter Sets are distributed by Kalt Corporation, 2036 Broadway, Santa Monica, California 90404, and they're available from most camera stores. Ranging in price from just \$4.95 for the most basic set to \$59.95 for the elaborate professional set, they're a veritable bargain. □

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CONTEST NEWS

(Continued from page 10)

The Virginia Commonwealth University School of the Arts is sponsoring the **City Sunrise/City Sunset** photographic competition as a part of its City I Festival this year. Original, previously unpublished color prints of the urban landscape at sunset or sunrise will be accepted until March 9, 1979. For entry information contact City I Festival, Virginia Commonwealth University, School of Arts, 325 North Harrison Street, Room 518, Richmond, Virginia 23284; phone (804) 257-1711.

The SIMA Products Corporation announces its **"Invent Something"** contest, which seeks original invention ideas that are camera-related, designed for darkroom, or conceived as a photographer's gadget. In addition to the prizes for the winners, every contest entry, win or lose, is eligible for development as a new product by SIMA with an attendant royalty contract. Ideas remain the sole property of the entrant. To participate in the contest, entrants must describe their original product ideas clearly in 50 words or less; plans, models or sketches will not be accepted, nor will they be returned. The contest closes May 31, 1979. Official entry blanks will be available in major camera stores starting March 1, 1979; or write "Invent Something" Contest, c/o SIMA Products Corporation, 4001 W. Devon Avenue, Chicago, Illinois 60646.

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GALLERY '79

□ The photographs on these pages were taken by photographers of professional caliber. If you feel your photographs are of similar quality, send us the evidence (along with a stamped, self-addressed return mailer—in case we don't agree). PhotoGraphic will consider either black-and-white or color photographs submitted according to the following guidelines:

Black-and-white: There is no limit to the number of prints you may submit to *Gallery '79*, but they should be no larger than 11 × 14 inches and unmounted. Prints with white borders are preferred. Your name and address and all pertinent data must be printed on the back of each picture.

Color: We will accept no more than five color transparencies from any photographer for consideration. To submit slides print your name on each slide mount and enclose all equipment and exposure information on a separate sheet of paper. Color prints must be at least 3½ × 4½ inches in size, on glossy paper.

Also, for any photograph in which a person or persons can be identified, the picture must be accompanied by a signed release from each recognizable individual. PhotoGraphic will pay \$25 for each picture published. Prints and transparencies are accepted for one-time use and will be returned after publication date. □

1. Where does Santa go during the off-season? Thomas J. Serafin almost found out, and recorded the evidence with a 90mm lens on a Mamiya RB67, using Kodak Plus-X Film. Studio shot was made for the cover of an after-Christmas sale booklet.

2. Richard Auger was inspired by a story on infrared portraiture in PhotoGraphic (November, 1978 issue, page 42) to give it a try. The result: this sunlit portrait taken with a 55mm lens on a Chinon CS camera, using Kodak High Speed Infrared Film rated at E.I. 160 and a red No. 25 filter over the lens.



GALLERY '79

1. Larry Dech photographed this pier on Lake Michigan at sunset using a Vivitar 75-205mm zoom lens with 2X tele-converter on an Olympus OM-1, and Kodak Kodachrome 25 Film.

2. A slight breeze blowing toward the camera barely rippled the lake in this scenic shot by Marlin Harris, made on Kodachrome 25 using a Canon F-1 camera.

3. Oak tree at sunset was shot through home-made variable filter by Carl Heinz, using Minolta XK with 135mm lens and Kodak Ektachrome 200 Film.

4. Low sun angle and fall colors add interest to country scene photographed by John Taylor on Kodak Kodachrome 64 Film, using 50mm Rokkor lens on Minolta SR-T 200 camera.

5. David E. Fischer used backlighting to capture both translucent leaves and silhouette effect with 50mm lens on Olympus OM-1 and Kodachrome 64 film.





3



4



5

Now...America's pioneer announces a completely of home study for to turn a hobby into

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NYI has not only made training at home more practical than ever before... it has also made learning a lot easier. Here are three reasons why:

1. NEW Voice-on-Tape Lessons. NYI's exclusive "world of tomorrow" audio teaching goes hand in hand with printed lesson materials. The voice of your instructor guides your study on a cassette player supplied with your course, leaving your hands free to examine photographs, manipulate your camera, or turn pages of text. It's almost like being in class—except you're a class of one—and you can have "instant replay" whenever you want it.

2. NEW "Person-to-Person" Critiques. Of course, you would expect to be given periodic photo assignments in a course of NYI's thoroughness. What comes back to you with your photos, however, is much more than you would expect. You receive a cassette tape with the voice of your instructor, analyzing your work, telling you what's good and what can be improved. It's amazing how much stimulation and encouragement you get from this kind of "living" contact—and how much it accelerates your learning!

3. NEW Magnificently Produced Texts. NYI's lesson materials always keep pace with the times. This time we think the school has outdone itself. The new text is not merely revised here and there but is rewritten and redesigned so that it reflects modern photographic art and techniques more completely than ever before. The pages are big, BIG—the size of salon prints. The many photographs by masters like Ansel Adams and Henri Cartier-Bresson are not only beautiful to look at but are there to teach you to see as sensitively as they see.

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□ A battered old safelight illuminates this page as I write, reflecting in my glass of Scotch. As I stare into the pale yellow depths, it seems as if I am gazing once again into a tray of Dektol, waiting for the highlights to come up. An ice cube comes up instead, along with memories of old darkrooms. A few were warm and sustaining, producing images that still endure. Many were little more than a dark closet and a basin, the photographer's version of T.S. Eliot's "restless nights in one-night cheap hotels." Stainless spiral nebulae and the hypnotic gurgling of unfiltered local water. The casualty rate in those days was frightening: One frame out of three would succumb to the spotted death.

The sad thing is that many photographers go without the joy of doing their own developing and printing because they have a narrow view of what a darkroom has to be. My first darkroom was professional. Not the high-class custom kind, but the mass-production pits: the local densitometer-and-frozen-test-strip factory where every drugstore in the area sent its film. I ran a paper processor, heat-splicing rolls of machine-exposed photo paper, and watched the emerging images as they glided over the rollers in my deep tanks. Prints of astounding mediocrity dipped in and out of the murky soup like a school of dolphins. But the system worked. We cranked 'em out by the thousands.

When that relentless procession finally emerged into the white light, it was upon a hot ferrotype drum as big as a steam-roller. Naturally, it would have been disastrous to have a stick-up in the middle of a big production run. Such an occurrence was in fact rare, thanks to my careful maintenance of the drum with a wonder darkroom product the lab recommended. It was called "Cake Bon Ami," and I was sure I'd heard the name somewhere before. The Bon Ami was applied in swirls with a wet rag onto the surface of the drum and allowed to dry thoroughly. Then it was polished off with a clean, dry rag. It left that chromed monster gleaming. Bon Ami's slogan: "Hasn't scratched yet." In all the years since, I haven't found a more effective or economical way to clean a ferrotype surface of any size. Its only drawback is ferrotype elbow.

The lesson here is that sometimes little things work and big things don't. A household mirror cleaner can help you turn out great glossies, but very expensive equipment doesn't guarantee good prints. So what do you need? Surprisingly little is

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SILVER DREAMS

JOE NOVAK

DARKROOM DELIRIUM

essential. The enlarger and the enlarging lens are clearly the most important pieces of equipment.

A good enlarger is one of photography's most stable investments. The best of them invariably survive their owners and are just as unlikely to become obsolete. For these reasons a quality used enlarger (put up for sale by an obsolete owner) can offer excellent performance and value. Example: I was fortunate enough a number of years ago to find an old



Time photographer Bill Pierce measuring Rodinal in his darkroom-on-the-Bowery. And they used to call him Broadway Bill.

Leitz Valoy II 35mm enlarger—in mint condition—for \$65. I still have it and believe it to be superior to most contemporary enlargers. It features smooth helicoidal focusing and a brilliant single-condenser optical system. On top of that, it looks beautiful. I wouldn't take \$500 for it. There are more Valoys and other classic enlargers out there gathering dust in attics all over America. I hope you find one. If not, there are a number of moderately priced machines that are serviceable.

You'll also need a tank and reels, a timer, a thermometer, about four trays, and probably a siphon to convert one of the trays into a washer. Possibly you'll want to save money by assembling a squad of well-rinsed but homely bleach bottles to hold stock solutions. Most certainly you'll need a safelight. Two reels are good for a start. Like the tank, they should be made of stainless steel. Personally, I prefer reels without nasty little spikes at the core. And I like PVC plastic tops on my stainless steel tanks, since they can survive dropping without getting bent out of shape.

Electronic digital timers are dandy and well worth the investment, but you can get by for awhile on a kitch-

en clock and a metronome. And Kodak's wonderful old art deco tray siphon is a must. It's a classic hypo sucker.

No question, an enlarging easel and a grain magnifier are damn useful, but not absolutely essential. An intelligent option is to print full-frame on an inexpensive, nonadjustable Speed Ez-El. Full-frame prints with large white borders are "in," anyway.

Rounding out your gear will be a clothesline and wooden spring clothespins for drying film and resin-coated paper, and an assortment of dime-store measuring cups and funnels. Tongs (two) if you loathe brown fingernails. And you should.

"Look, Novak," you protest (mildly exasperated), "the equipment is not that much of a problem. But where do I put a darkroom? I can't turn my apartment into a giant trough!" Good point. We have become a nation of grad students and gypsy photojournalists, nomadic by circumstance and temperament. Many of us cannot or will not think in terms of a large or a permanent darkroom. To the apartment dweller, space is at a premium, and the installation of special plumbing is either not practical or not permissible. This predicament sometimes befalls the professional as well as the amateur photographer. When this happens, it is sheer survival instinct that takes over.

Consider the case of Fred Conrad, a young, energetic and talented *New York Times* staff photographer. When he was only free-lancing for *The Times*, he survived in a studio apartment so small that he nearly tripped over the police lock on his way to the darkroom-bathroom. He slept on a bunk over his light box and contact sheet files. Most of the time this worked out fine, but occasionally the piles of print files, Tri-X boxes and tear sheets would creep dangerously close to the top of Fred's bunk, and he'd have to call a group of his friends over to dig him out. Fred is now figuratively, and not literally, on top of the heap, having moved to more comfortable quarters.

Mr. Conrad is not alone in his determination. Jerry Berndt, another young professional (whose portrait appeared in January's column), has been a successful photojournalist in Detroit and Boston. For years Jerry slept on a slab of plywood near the ceiling of his darkroom in an industrial loft. Had he ever fallen out of bed he would have run the risk of being impaled on his enlarger.

In a future column I'll tell you more about the darkroom and offer some practical solutions to the space problem. Start looking for an enlarger. □

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☐ It's been some time now that we've been hearing about the so-called radiation problems from assorted modern conveniences, and so I decided to find out for myself if there's any truth in what's being said. As you probably know, the equipment used for measuring radiation is both complex and expensive. I looked for a simpler way of getting a relative indication, and the results of my test are provided here.

Now don't get the idea that this test is all-encompassing. To do it right, we'd need discreet radiation counters and a representative sample of every color TV and microwave oven we could get. This test was designed to give a relative indication only. No more and no less.

As you know, sensitized photographic surfaces will fog when exposed to radiation. I originally planned to run the test using photographic film. However, it would be difficult to exercise the necessary controls while processing, so I used photographic enlarging paper in my experiment instead.

I started by going into the darkroom and cutting a single sheet of enlarging paper into two-inch squares. Each square was marked with wax crayon on the reverse side, one with a letter "C" for control, the others with sequential numbers.

The next step was to carefully wrap each square in a piece of black lighttight paper, with masking tape to keep the paper closed. The outside of the papers was marked with the same identification as on the enlarging-paper square inside it.

Since I wanted to learn a few things about radiation, I began by taping the No. 1 piece directly to the receiver's screen. The No. 2 piece was taped to the back of a chair, which was positioned one foot away from the set's screen. The No. 3 piece was taped to my shirt. The piece with the "C" was put into another room.

Now for the most difficult part of the test. I spent an entire evening watching television. If anything showed, it would be simple enough to process the pieces, then set them under an ordinary lamp and use a photographic reflective light meter to get some numbers. I'd know a) if anything showed up on the piece taped to the set, and b) by measuring the reflected light from the others, what the rate of decay would be through space.

After a full evening of "exposure" I developed the pieces of enlarging paper, taking great care to immerse them at once in the developer while carefully watching the time.

ELECTRONICALLY YOURS

BYRON G. WEIS

DOES FILM FOGGING BEGIN AT HOME?

I'm happy to report that I detected no radiation effects on the paper at all—at least none that I could see. A friend who is extremely knowledgeable in this field pointed out that I should have checked at the yoke around the neck of the picture tube as well, but since we are never directly exposed to the yoke, such information would have been purely academic.

The test results were equally interesting. There was no visible, record-



To make a simple radiation-level test, ordinary enlarging paper is cut into squares of about two inches each, wrapped in black paper and numbered. One packet is held aside as a control, and others are fixed to the TV screen and spaced at one-foot intervals to check rate of decay.

able difference between the control piece and any of the others. This indicates that watching TV, even for extended periods, should have no appreciable effect resulting from exposure to radiation from the television receiver. Exposure to what comes over the set is another story entirely, and we aren't quite certain about how to measure that.

However, before you simply decide that on the basis of this report there is no radiation hazard from TV sets, I would suggest that you run some tests of your own, using the same method outlined here. All this report

can really do is to tell you how to make the test, and that the tests run on my own receiver showed no radiation hazard at all. Naturally there are other factors that must enter into an absolutely defined test, and it will be an easy matter to poke holes in these findings. Still, the test can be used to get a general idea of the chances of radiation hazard.

The same principles can be applied to any other piece of equipment that's known to emit radiation, and I suggest that should you decide to try the tests and come up with different results than I did, it would be a good idea to check things out with the manufacturer of that equipment just to make certain you're safe.

Of course, the important thing to ask is, what will happen should you detect a discoloration or fogging when making a similar test on your own equipment.

The first thing to do is to repeat the test to make certain you didn't accidentally goof and expose the paper to any light during the preparations for your test. If the results seem to have repeated, then determine the rate of the radiation's decay through space. Until you receive a satisfactory answer, do not allow family members closer to the unit than safe (or clear-result) limits when it is working.

The next thing to do is to contact the manufacturer of the equipment, tell him what you did and what happened as a result, and ask his advice. Surely you will be sufficiently concerned that you will want to handle this in the most expeditious fashion possible—by telephone. But it's a relatively simple matter for a company representative to say, "Don't worry about it." If you handle the matter in the form of a registered letter with a return receipt requested, the question has got to be acted on and an answer returned. Your object is to receive written statements regarding the problem and what to do about rectifying it. All correspondence should be retained. Make copies of the letters you send out and keep the letters you receive.

Naturally, such tests as this are technically inaccurate and really far from definitive. However, proper testing methods would require extensive equipment and a good deal more in the way of laboratory facilities than most of us possess. But this test, inadequate as it is, should reveal any problems and is therefore well worth making. If you have any equipment in your home you suspect is a radiation hazard, you can easily duplicate the test and see for yourself if there is indeed a problem that might be worth further investigation. □

Obviously, not everyone needs—or should even want—a view camera. If you're primarily into photo-journalism or snapshots, a large format camera is probably not for you.

But for portraiture, still lifes,

nature, interior or exterior architectural and close-ups — areas in which total creative control of image and perspective and the zone system are all important—an Omega-View 4" x 5" is an affordable necessity. More affordable than many professional SLR systems. And an absolute necessity if...

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• You appreciate the optimum detailing and tonal quality provided by zone system controlled exposure and single sheet processing. (It's the difference between

drug store pictures and gallery prints.)

• You demand the ability to creatively control distortion, sharpness, depth of field and image positioning. If you want, appreciate and demand this kind of quality in your photographs, a view camera—and more specifically an Omega View 45E—or 45F (with its 360° revolving back)—should be in your view. Find out from your Omega View/Toyo dealer. Or write.

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SHADES OF
A NEW ERA

□ "Compendium," "bellows" and "adjustable" are all ways of describing the rash of devices now being offered to shield lenses from unwanted rays of light. These new lens shades, which look like they should be parts of small view cameras, have entered the market for the best of reasons: They are extremely practical and functional pieces of equipment. Photographers have come to appreciate their usefulness and have created a demand manufacturers must meet.

It all started with professional motion-picture cameramen who need lens shades adjustable to the requirements of different focal-length lenses and to the use of mattes for creating montage effects. Hasselblad was the first popular roll-film camera to offer an adjustable bellows-type shade that was adaptable for use on most of their line of interchangeable lenses. The accessory's immediately apparent usefulness, along with the fact that it could be fitted to other brands of camera lenses by means of a simple Series 8 adapter ring, brought about such interest among other than Hasselblad owners that the company could barely keep up with the demand.

It wasn't long before Mamiya was making bellows-type adjustable lens shades for its new RB67 camera. Its design, which allowed easy holding of vignetter masks and montage mattes, made the shade an immediate success, particularly among portrait photographers. With the positive experience of the RB67 shades behind them, Mamiya included a bellows-type adjustable lens shade in their line of accessories for the new-format M645 camera shortly after its introduction. Crowding the bandwagon even more, Bronica has just an-

nounced a similar adjustable lens shade to fit all the lenses made for their ETR 6×4.5cm-format, single-lens reflex camera. This unanimous offering by the manufacturers of 120-size cameras is only part of the picture. Independent manufacturers are now providing a wide choice of different bellows-type adjustable lens shades for the great multitude of 35mm enthusiasts.

The need for adjustable lens shades existed before they became readily available. Even with all the various antireflective coatings on lenses, extraneous light striking the front surface can bounce around inside the lens and finally onto the film emulsion, degrading the quality of the image. Sometimes there are individual round lens shades either supplied with or built into interchangeable lenses available today, but they're usually too short for most longer lenses, particularly zooms. And since the image format is either square or rectangular, a round shade can precisely shade the lens only in respect of the corners of the format. The new adjustable shades, however, have either square or rectangular front openings, depending on camera format. They can be precisely adjusted, with only rare exception, to exclude all extraneous light from striking the front element of any lens. The exceptions include the very shortest extreme wide-angle, the very long large-aperture telephotos, and all fisheye lenses.

This adjustable function is accomplished by the use of a rail (or rails) on which two vertical standards are mounted. Either the front or back standard moves along the rail, varying the distance between the standards. The front standard is usually larger than the rear and contains an opening that matches the format proportions of the camera on which the shade is used. The rear standard has an opening for attach-

ing an adapter ring that connects the shade to the camera lens. An accordion bellows is suspended between the two standards and adjoined to their inside surfaces. In addition, the front standard of most models provides a means of attaching montage mattes or vignetter masks. Rear standards usually include a slot into which three-inch square (75mm) gelatin filters can be placed. On some models standard-series-size glass filters can also be used.

Besides making precision shading possible with lenses in a great range of focal lengths and of varied design and manufacture, the adjustable shade can also function as a matte box. With simple, inexpensive accessories it can be used to create montage double-exposure effects and a variety of vignetted effects. Most manufacturers of bellows-type adjustable lens shades also provide these montage mattes and vignetter masks for use on their particular products. One manufacturer even makes a second bellows shade extending in front of the normal standard to protect the vignetter mask or matte from extraneous light.

One of the most valuable features of bellows-type adjustable lens shades, yet the one given least attention by the manufacturers, is the facility with which gelatin filters can be used. Just the fact that gelatin filters are accommodated by the shades is significant in itself. They are, however, also held adjacent to the rear standard, which provides complete critical shading of the filter. This function is of great importance because filters, like lens elements, can reflect extraneous light both internally and from their surfaces to degrade the quality and contrast of the image passing through. Before the advent of these adjustable shades, complete shading of a gelatin filter was difficult, if not impossi-

ble, to ensure.

Exactly why the adaptability of gelatin filters to lenses via the adjustable lens shade is so important may not be apparent unless you're familiar with gelatin filters and what is available. Eastman Kodak is essentially the exclusive source for gelatin filters. The kind of selection they offer becomes immediately apparent when you skim through their publication number B-3, *Kodak Filters for Scientific and Technical Use*. For black-and-white photography alone, 67 different filters in three-inch-square gelatin are listed in a wide range of colors. In addition, there are color conversion filters, color compensating filters, neutral density filters and a variety of special-purpose filters.

Besides this phenomenal selection, the Kodak gelatin filters that can be used on most adjustable lens shades are inexpensive compared to glass filters. They list at \$3.25 each, and you only need one for each different-sized lens. Another real advantage is that they are lightweight and extremely compact, packaged and sold in simple paper envelopes. A dozen different Kodak gelatin filters in their respective envelopes take up a space one inch thick by 3½ inches square, easily fitting into a coat pocket. Because adjustable lens shades are also compact when the standards are closed together, and very light, being made of impact-resistant plastics, the gelatin filter/adjustable shade combination is but a small burden to include with camera and lenses, even for the backpacker.

No great mysteries are involved in using adjustable lens shades or gelatin filters. Each different brand of lens shade has some kind of adapter ring to fit it to a lens. A separate adapter ring for each different lens filter size (or bayonet type, if applicable) to be used with the shade is required and must be speci-



1. The Shade+ by Ambico, available in rectangular and square formats for 35mm and 2¼x2¼ cameras, features an accessory shoe and a single folding rail for compact storage. It accepts accessory vignettters and montage masks also available from Ambico.

2. The Bell-O-Shade by Lindahl Specialties has rails fixed to the rear standard with extensions included for use with long lenses. This feature, with the rails extended to the front, makes the Bell-O-Shade adaptable to large-format cameras as well as 120- and 35mm-size. A second bellows with its own standard, called the Bazooka, provides shading for vignettters and montage masks. A large selection of different vignettters and montage masks is available from Lindahl Specialties for use with this shade.

3. The Mamiya professional lens shade, when ordering the shade. The adapter ring is then attached to the lens

shades for the RB67 and the M645 shown are constructed with metal standards and rails with geared adjustment mechanisms. The rails are inscribed with marks that indicate the adjustment position for each different focal-length lens on which the shade can be used. Adapters designed for attaching the shade to various lenses in the camera system are included with the accessory when purchased.

4. Kodak Wratten gelatin filters fit easily into a slot built into the rear standard of bellows-type adjustable lens shades. The gelatin filter receives shading in addition to being held securely in front of the lens. This feature, common to most bellows-type shades such as the Hasselblad Professional model shown, provides easy use and access to the wide range of gelatin filters available in the three-inch-square size.

and the shade attached to the adapter in the manner specified in the instructions

for each different brand of shade. The adapter ring for the shade is separate to allow the shade to be positioned in relation to the camera's picture format. Once the lens shade is on the camera, the distance between the front standard and the rear is adjusted to suit the focal length of the lens by moving it out until the edges of the format in the camera viewing screen begin to be vignettted. The front standard is then moved back ¼ to ½ inch. This final adjustment is made because most camera viewfinders do not show 100 percent of the image to be photographed.

The Kodak filter publication previously cited contains descriptions of the colors and functions of each filter, including the exact transmission of specific portions of the visible spectrum and the percent of luminous transmittance. Filter factors for exposure correction for many of the color-conversion, balancing and compensating filters are provided in the book. Filter factors for commonly used color filters are usually contained in the literature included with black-and-white films. The same kind of care given lenses should be exercised when handling gelatin filters. The filter surface should be kept free of dust and dirt with a lens brush and bottled air, and the gelatin should be grasped only at the extreme corners to prevent damage and fingerprints on the area through which you will photograph.

The superior ability of adjustable bellows-type lens shades to protect a lens from extraneous light, along with their easy adaptability to a variety of different lenses, make them ideal complements to contemporary camera systems and varied-focal-length lenses. The simple and inexpensive adaptability of montage mattes, vignettter masks and gelatin filters extends a broad range of creative control to every serious photographer. □

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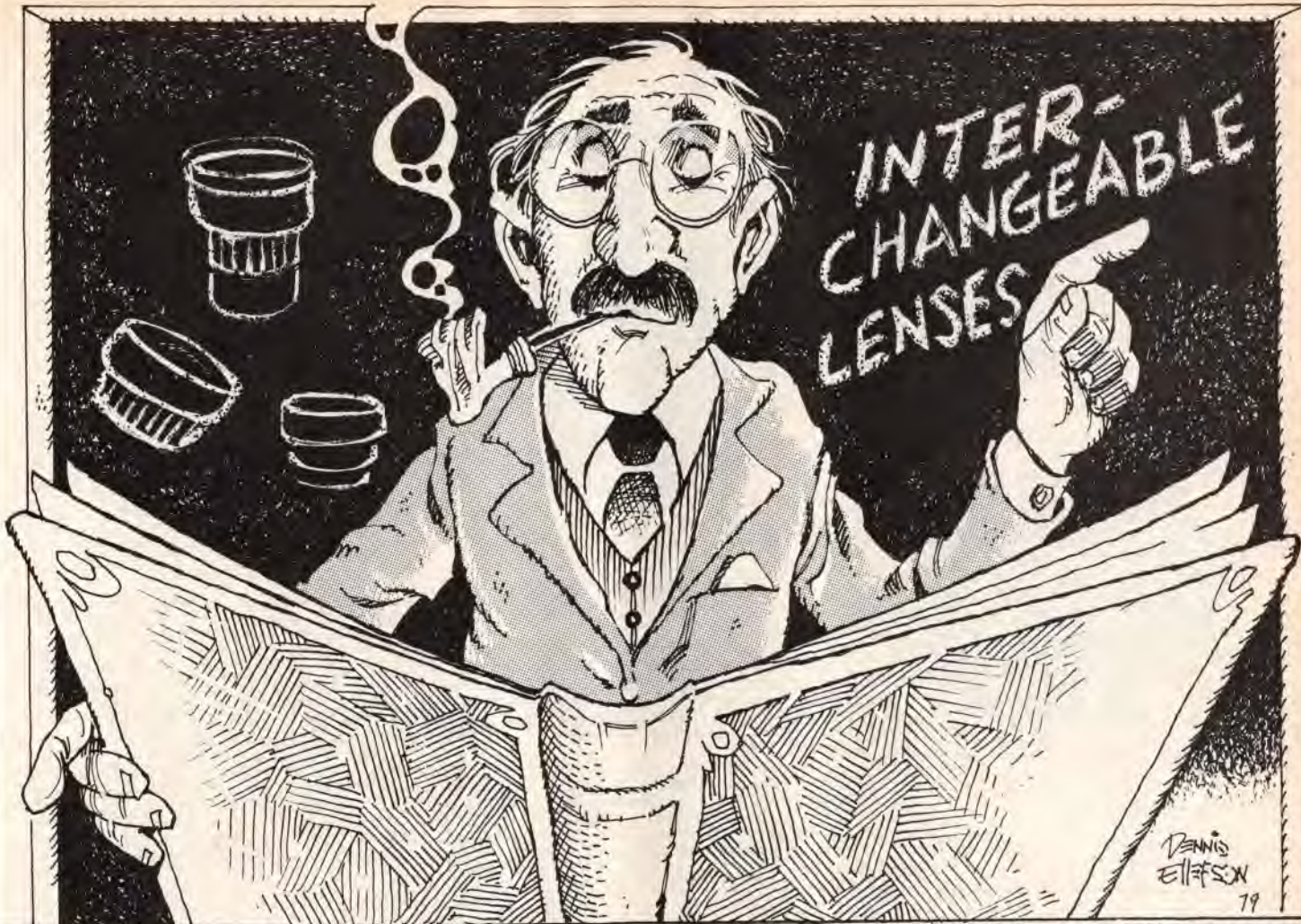
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BASIC 35MM SINGLE-LENS REFLEX PHOTOGRAPHY

BY BILL HURTER AND MIKE STENSVOLD

Welcome back to the wonderful world of the 35mm single-lens reflex camera. This time we're going to talk about lenses because one of the nicest features of the 35mm single-lens reflex camera is its interchangeable lenses. You can easily remove the lens that's on the camera and attach a different one in its place.

A lens is basically just a tube that contains some glass elements. Its primary purpose is to sharply focus the light rays from a scene onto the film. The lens also controls the amount of light that reaches the film. And lenses of different focal lengths control the size of the image—the magnification—that you see in the viewfinder (and therefore record on the film).

The primary reason for using interchangeable lenses is that they allow you to change focal lengths—to change the size of the image. Some

lenses cover a wide field of view and produce very tiny images. Others cover a small field and produce very large images. If you can't get far enough away from your subject to get all of it in the picture, you can change to a wide-angle lens and get the whole subject on film. If you can't get close enough to a subject, you can put a longer lens on the camera and "bring the subject to you."

Along with such practical uses for interchangeable lenses there are creative uses, too. You can use a wide-angle lens to produce or enhance a feeling of spaciousness in a scene, or you can use a long lens to produce a feeling of intimacy. Read through the following pages, then examine the work of other photographers, and you'll soon discover many creative applications for interchangeable lenses.

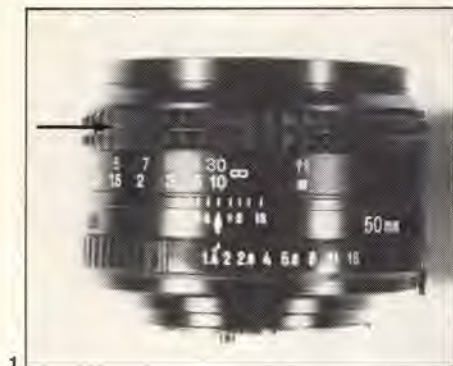
But before you dash out and buy a

bunch of lenses, think over what kinds of pictures you like to take, and think about what lenses would be best for these types of photos. Then start by getting the lens or two that will best serve your needs. Don't ask friends what lenses they use, unless they shoot the same kinds of pictures you do and have the same tastes you have. You want lenses suited to your photography, not theirs.

You may not need a whole complement of lenses—coauthor Mike does nearly all of his photography with just two lenses (which two doesn't matter to you—you're you, not Mike). On the other hand, maybe someday you will—coauthor Bill has "one of everything" in his bag, because his photography requires it. Get the lenses you need, but get them because you need them, not because someone else has them.

And now: interchangeable lenses. □

INTERCHANGEABLE LENSES



1



3



2

FOCUSING

1. The lens' focusing ring (arrow) is used to focus the image. Turn the ring until your subject appears sharp on the viewing screen in the viewfinder. When the image appears sharp in the viewfinder, it will be sharply focused on the film when you make the exposure.

2. A lens' length is shortest when it is focused at infinity (right). When the lens is focused on closer objects, it becomes longer (left). There is a limit to how close a given lens can focus. This minimum focusing distance is determined by how far the lens can be extended by turning

the focusing ring.

3. Most lenses have a focusing scale (arrow), which indicates the distance at which the lens is focused. When you have focused the lens so that the subject looks sharp on the viewing screen, you can look at the focusing scale to see how far away the subject is. The focusing scale is generally marked in both feet and meters. This lens is focused at 30 feet (about ten meters).

If for some reason you cannot see when the image is sharply focused in the viewfinder (because of very dim lighting, for example), you can measure the distance between the camera and the subject and then set this distance on the focusing scale. But normally you should focus visually, using the viewing screen.

IMAGE SIZE

1. The size of the image you see in the viewfinder (and therefore record on the film) is controlled by two things: the distance between you and the subject, and the focal length of the lens on the camera. With a given lens, the closer you get to the subject, the larger the subject will appear in the viewfinder (and on the film). This subject's name is Hieronymus.

2. If you stay at one distance from the subject, you can control the size of the image by changing to lenses of different focal lengths. Each lens' focal length is marked on the lens, usually in millimeters (mm).

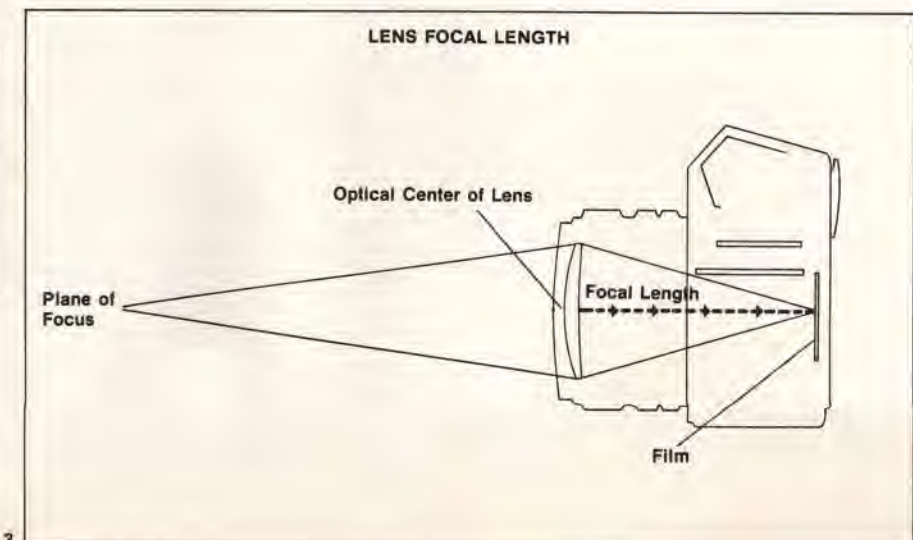
3. The focal length of a lens is the distance between the film and the optical center of the lens, when the lens is focused at infinity. The optical center of the lens is the point at which the lens acts upon the incoming light rays.



1



2



3



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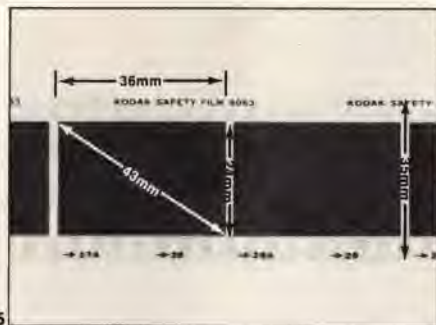
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The Encyclopedia of Practical Photography. The facts.

INTERCHANGEABLE LENSES



MINIMUM SHUTTER SPEED TABLE

If you are using this shutter speed:

Use a lens with a focal length no longer than:

1/1000	1000mm
1/500	500mm
1/250	250mm
1/125	125mm
1/60	60mm
1/30	30mm
1/15	15mm

Note: If you must use a shutter speed slower than the one listed for a given focal length, attach the camera to a tripod to assure sharp results.



4. This picture was shot with a 50mm lens (its focal length is 50mm, or about two inches). The 50mm lens is regarded as the "normal" lens for a 35mm SLR camera, because it is the focal length that normally comes with the camera.

5. Actually, the "normal" lens for a given camera is the one whose focal length is closest to the diagonal measurement of the image frame produced by the camera. The diagonal measurement of the 24x36mm image frame produced by a 35mm SLR is about 43mm; the 50mm lens is generally the one whose focal length is closest to this dimension.

6. This picture was taken with a 24mm lens in place of the normal 50mm lens. The 24mm lens has a shorter focal length than the 50mm lens, so it produces a smaller image but takes in a wider angle of view. Any lens that has a wider angle of view than the normal lens is called a *wide-angle* lens. Note that with the wide-angle lens, more of the scene appears in the picture, but everything is smaller than in the shot made with the normal 50mm lens.

7. This picture was made with a 100mm lens, which has a narrower angle of view than the 50mm lens. The 100mm lens has a focal length twice that of the 50mm lens, so it produces an image twice the size of that produced by the 50mm lens. Lenses that produce larger images than the normal 50mm lens does are known as *long* lenses. If these long lenses are physically shorter than their focal length (producing the magnification optically rather than solely through physical length), then they are called *telephoto* lenses. Most long lenses for 35mm SLR cameras are telephoto lenses.

8. This picture was made with a 200mm lens. This lens has a narrower angle of view than any of the previous lenses, and produces an even larger image, as you would expect at this point, because of its longer focal length. The 200mm lens' focal length is twice that of the 100mm lens and four times that of the 50mm lens, so it produces an image twice as large as that of the 100mm lens and four times as large as that produced by the 50mm lens.

9. This image was produced by a 400mm lens. As you can see, the longer the focal length of the lens, the greater the magnification and the smaller the field of view.

10. The image isn't the only thing that's magnified as the focal length of the lens increases. Blurring caused by slight camera movement is also magnified as the focal length increases. You can minimize this blur by using faster shutter speeds with longer lenses. A good rule of thumb is to use a number on the shutter-speed dial that is no smaller than the focal length of the lens you're using, as shown in this table.

11. If dim light prevents you from using a suitably fast shutter speed (and whenever it is practical, even in good lighting), you can maximize sharpness by putting the camera on a tripod, which will hold it steady and prevent camera movement.

12. When the lens is heavier than the camera body, as is the case with some of the longer focal lengths, the lens rather than the camera body is mounted on the tripod to prevent the weight of the lens from overstressing the camera's lens mount. If the lens needs to be tripod-mounted, it will have a tripod mount built in.

13. If you don't have a tripod, you can brace the camera against a wall or other solid object to help steady it.

14. Interchangeable lenses for 35mm SLRs exist in focal lengths from 6mm to 2000mm, and chances are a goodly range of lenses is available for your particular camera.

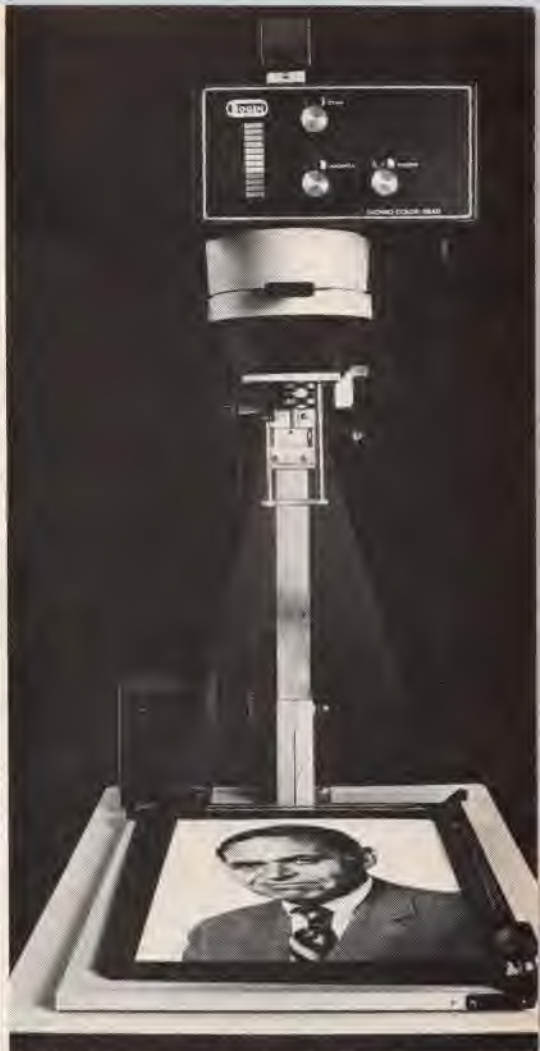


PERSPECTIVE

1. It is commonly (and incorrectly) believed that changing the focal length of the lens (using a shorter or longer one) will change the perspective in a photograph. (Perspective is the spatial relationship among the various elements in a scene—how big one object in the scene appears to be relative to another and how much distance there appears to be between them). Actually, changing the focal length changes only the size of the entire image. Changing the camera position—the camera-to-subject distance—is what changes the perspective. As proof, examine this and the next two photos. This photo was made with a 200mm lens. Notice the size/distance relationships among the various elements of the scene.

2. This shot was made from the same spot, using a 24mm lens. Notice that, while all of the elements in the scene are much smaller, their relationship to one another has not changed. This will be easier to see in the next photo.

3. This picture is a blowup of the center section of the 24mm shot, enlarged so that it covers the same area of view as the 200mm shot. Notice that, aside from the fuzziness caused by the extreme degree of enlargement, this shot is exactly the same as the one made with the 200mm lens. The relationship among the various elements of the scene is identical in the two pictures; the perspective is the same.



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INTERCHANGEABLE LENSES

4. If you want to change perspective, you have to change the camera position, not just the lens, as this and the next three photos show. This shot was made with a 200mm lens.

5. This shot was made with a 100mm lens. In order to maintain the same subject size as in the 200mm lens shot, the camera was moved twice as close to the subject. The result, as can be seen by examining the relative sizes and spacing of the various elements of the scene, is changed perspective—these relationships have changed because the camera has been moved.

6. This shot was made with a 50mm lens. The camera-subject distance was half that of the 100mm shot, to maintain the same subject size. Again, the perspective has changed because the camera was moved, not because the lens was changed.

7. This shot was made with a 24mm lens. Again, the camera-subject distance was halved to maintain the same subject size, and again the perspective has changed because the camera was moved closer to the scene.

8. OK, we've demonstrated that changing the focal length while keeping the camera in one spot does not change the perspective, and that changing both focal length and camera-subject distance does change perspective. The only other combination is to change the camera position but not the focal length. This shot was made with a 100mm lens.

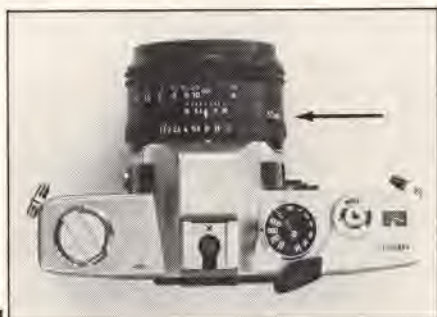
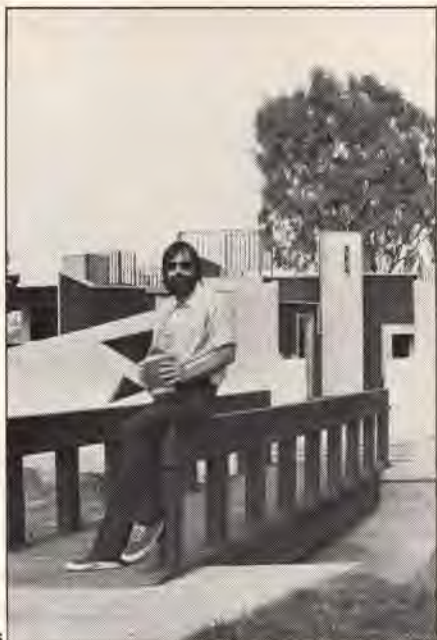
9. This shot was made with the same 100mm lens, but the camera was moved farther away from the subject. Notice the relative sizes of the subject and other elements of the photo—the perspective has changed. Changing the camera-to-subject distance is what changes perspective, not switching focal lengths.

10. As you can see from photos No. 4-9, when you move the camera closer to the scene, the perspective is expanded (the elements of the scene seem farther apart), and when you move the camera closer to the scene, the perspective is compressed (the elements seem closer together). Because of this expansion and compression of perspective, portraits of people generally have the most pleasing appearance when shot from a certain distance from the subject. For a standard head-and-a-little-more portrait, this distance is about five to seven feet. If you use a normal 50mm or shorter (wide-angle) lens, you have to move closer to the subject. As a result, the subject's features are elongated.

11. If you use a 200mm or longer lens, you have to move farther from the subject in order to get the right image size, and as a result, the subject's features appear compressed or "squashed."

12. Lenses in the 85-135mm focal-length range are best for portraits because they provide the right image size at the right camera-subject distance for proper perspective and pleasing portraits.





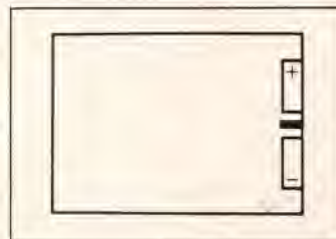
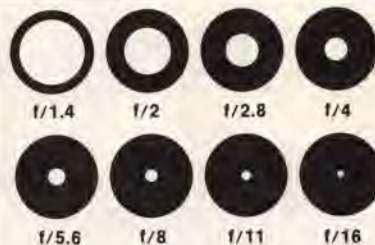
APERTURES

1. The lens' aperture ring controls the amount of light that reaches the film (and viewing screen). The numbers marked on the aperture ring are called *f-numbers*. The aperture ring on this lens is set at $f/8$.

2. The aperture ring controls the amount of light the lens transmits by adjusting the size of the opening in the lens' diaphragm. The diaphragm openings represented by the *f-numbers* on the lens' aperture ring are called *apertures* or *f-stops*.

3. You probably noticed in illustration No. 2 that the large *f-number* ($f/16$) represented a small aperture, while the small *f-number* ($f/1.4$) represented a large diaphragm opening. That's because *f-numbers* are ratios—the ratio between the diameter of the diaphragm opening (*f-stop*) they represent and the focal length of the lens. For example, $f/16$ means that the opening in the diaphragm is $1/16$ the focal length of the lens. $F/4$ indicates an aperture diameter $1/4$ the focal length of the lens. So the bigger the *f-number*, the smaller the aperture and the less light that reaches the film.

4. Apertures control the amount of light that reaches the film. Shutter speeds control how long that light is reaching the film. The right amount of light hitting the film for the right amount of time produces the right exposure, as indicated by a centered meter needle in the viewfinder. (By the way, it is OK to set the aperture ring in between the marked numbers to center the meter needle, but don't set the shutter-speed dial in between numbers.)



INTERCHANGEABLE LENSES



5



6

5. Just as there are fast films and slow films, there are also fast lenses and slow lenses. Lens speed refers to the size of the lens' maximum aperture. A fast lens is one that transmits a lot of light—it has a large maximum aperture. Shown is a fast 50mm 1/1.4 lens.

A fast lens has two advantages over a slower one: First, it provides a brighter image for focusing and composing, because it transmits more light. Second, you can shoot in dimmer light, again because the faster lens transmits more light. A fast lens also has some disadvantages, however: First, lenses are not at their sharpest at maximum aperture, particularly if the maximum aperture is a large one; and second, fast lenses cost more than slower ones.

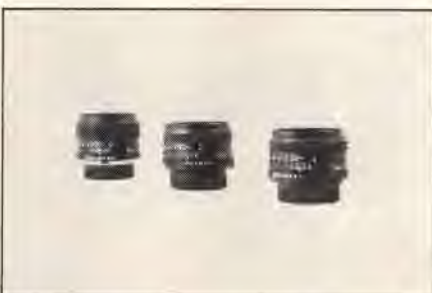
6. This is our pet equipment carrier, Rayfield the beatnik hippopotamus. (You can call him Hip Hippo Ray. . .) You'll notice that Ray's sunglasses are in focus, but his nose is not. That's because there wasn't enough depth of field to keep both in focus. What is depth of field? Read on and find out.



1



2



3



4



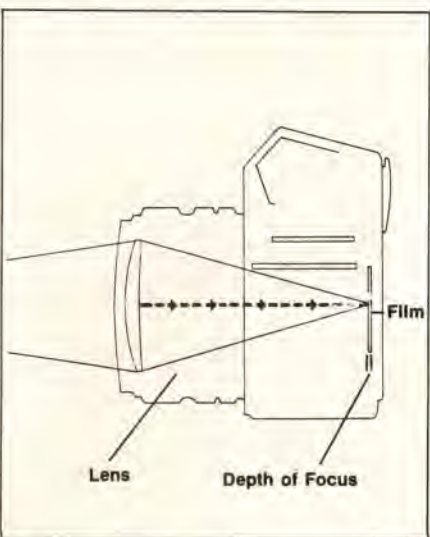
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6



7



8

DEPTH OF FIELD

1. Depth of field refers to the depth of the area in front of and beyond the point focused upon that appears sharp in the photograph. Here, depth of field is about equal to the width of the center lens. This photo was shot at $f/1.4$.

2. Depth of field can be increased by stopping the lens down to a smaller aperture (setting the aperture ring to a larger number). This photo was shot at $f/16$, and depth of field has increased to cover all three lenses. Of course, when you use a smaller aperture, you'll have to use a correspondingly slower shutter speed to make up for the lesser amount of light transmitted by the smaller lens opening, or your picture will be underexposed.

3. Depth of field can also be increased by moving farther away from the subject. This, however, will change the size of the subject's image (it will become smaller) and also the perspective in the photograph.

4. Depth of field can be increased by changing to a shorter-focal-length lens. But this will also make the image smaller.

5. It's obvious why you would want to increase depth of field—to get the whole subject in focus (the problem in the shot of Hip Hippo Ray), or to get a closer and a more distant subject both in focus (as in photo No. 2). But there are times when you will want to *decrease* depth of field. For example, if you are shooting a picture of a friend and the background is ugly or distracting (left), you can open the lens up to its maximum aperture and thereby limit the depth of field sufficiently to throw the background completely out of focus, so that it is no longer ugly or distracting (right).

6. You might be wondering at this point how you can tell just how much depth of field you will have in your photograph. There are two simple ways to do it. First, you can use the depth-of-field preview button. This stops the lens down to the aperture set on the aperture ring, so that you can see in the viewfinder exactly how much depth of field you will have if you shoot at that aperture. (The automatic lenses on today's SLRs stay at their maximum aperture until you take the picture or push the depth-of-field preview button, thereby providing you with a nice, bright view of the scene for focusing and composition. When the shutter button is pressed to make the exposure, the lens automatically stops down to the selected aperture to provide the correct exposure.)

7. The only problem with using the depth-of-field preview is that the image gets darker when the lens is stopped down because less light is transmitted at smaller f -stops. In dim light, therefore, you might not be able to see the image well enough to tell how much depth of field there is. This is where the depth-of-field scale on the lens barrel comes in handy. This scale (arrow) shows you the range of sharpness you'll have at any given aperture setting with the lens focused on a given distance.

For example, the lens shown is focused at 15 feet (about five meters), and the aperture ring is set at $f/8$. The depth-of-field scale shows that depth of field will run from about $10\frac{1}{2}$ feet to about 30 feet at these settings.

8. The term "depth of focus" is frequently misapplied to mean depth of field. Depth of field is the zone of apparent sharpness in front of and beyond the point focused upon. Depth of focus refers to the distance (very small) that the film plane can move toward or away from the lens and still produce an acceptably sharp image. Depth of focus is controlled primarily by the precision with which the camera was built, and you need not be concerned with it.



SPECIAL LENSES

1. As you'll recall from the section on focusing, the closest distance at which a lens can focus is limited by the amount the lens can be extended by turning the focusing ring. Some lenses have extended focusing mounts, so they can be extended farther than regular lenses and therefore are able to focus on much closer subjects than regular lenses. Such lenses are called *macro* lenses, and most of them will focus close enough to provide $\frac{1}{2}$ -life-size images of subjects on the film.

2. *Mirror* lenses produce long focal lengths by reflecting the light back and forth, in effect folding it, so they are more compact than regular (refracting) lenses of the same focal length—the short lens here is a 500mm mirror lens; the long lens is a 400mm regular telephoto lens. Mirror lenses have no diaphragm (f -stops) so exposure can be controlled only by changing the shutter speed or by using neutral density filters, which cut down the amount of light by definite increments.

3, 4. *Fisheye* lenses come in the shortest focal lengths and have an angle of view so wide (about 180 degrees) that they produce round pictures instead of rectangular ones. Shown are a Minolta 7.5mm Rokkor-X fisheye and a photo it produced. (Courtesy of Minolta Corporation.)

5, 6. A *zoom* lens can change focal lengths. When the zoom ring is operated, the relationships among the lens elements are altered, resulting in different focal lengths. One zoom lens can provide infinitely variable focal lengths within its range; illustrated are Minolta zoom lenses with ranges from 24-50mm (photo No. 5) and 75-200mm (photo No. 6). Although relatively bulky and, especially at their shorter focal lengths, slow when compared to regular lenses of the same focal length, zoom lenses are quite versatile, and one zoom can take the place of several regular lenses. Some zoom lenses also have macro capability. Zoom lenses can be used to produce special effects by zooming the lens while making a long exposure.

INTERCHANGEABLE LENSES



7



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7-9. Shift lenses (photo No. 7) have front elements that can be shifted up or down or left or right. These movements give the 35mm SLR some of the versatility of a view camera. One use for a shift lens is to correct the "falling over backward" look of a shot made looking up at a building (photo No. 8). This effect occurs because the camera is tilted up to get the whole building in the picture. (Your eyes will observe the same effect if you stand near the bottom of a tall building and look up at it—its sides seem to converge toward the top.) If you use a shift lens and shift the front element up, you can get the whole building in the picture without tilting the camera up, thereby eliminating the problem (photo No. 9). (Photos courtesy of Minolta Corporation.)

10. A soft-focus lens has settings that produce an image with varying degrees of softness, producing a pleasant, glamorous effect in portraits. This is a different effect, and a far nicer one, than the effect produced by shooting a photo out of focus with a regular lens.

CHANGING LENSES

1. By now, you've learned quite a bit about interchangeable lenses. Now we're going to tell you just how to go about interchanging them.

In order to remove the lens that's on the camera (which is the first step in interchanging lenses), you must first locate the lens-release button. The location of this button varies from camera to camera, so check in your owner's book for your camera to see where it is. It's at the tip of my finger on this camera.

2. Push the lens-release button and then turn the lens until the red dot on the lens (arrow) lines up with the red dot on the camera body (other arrow).

3. When the dots on the lens and camera are aligned, gently pull the lens away from the

camera.

Some cameras use screw-mount lenses, which just screw off and on like a light bulb, but most of today's SLRs use the bayonet-type mount shown.

4. To put a new lens on the camera, first align the dots on the lens and camera body. This procedure works well with used lenses, too.

5. Gently set the lens into position on the camera body.

6. Turn the lens gently until it clicks locked, with the aperture and focusing indexes facing up where you can see them. Never force the lens—if properly aligned, it will attach with just gentle turning.

Never handle more than one lens at a time. Remove the first lens and put it in a safe place before you pick up and attach the second one.

7. When a lens is not attached to the camera, it should be capped front and rear to protect the glass from damage and dust.



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LENS HOODS

1. A lens hood is a tubular device that extends in front of the lens to keep rays from a light source from striking the front element of the lens and causing lens flare. It also provides some degree of impact protection—if you bump the lens into something, the lens hood will cushion some of the impact.

2. When you are shooting toward a light source, rays from the light source can strike the front of the lens if no lens hood is used. When this happens, lens flare results. (This shot was made with an older, not-too-well-coated lens, to illustrate flare. Modern lenses are multicoated with antilens coatings that are amazingly efficient, but some flare can still result if you shoot toward a light source without a lens hood. Sometimes this flare can be used for artistic effect, but generally it is undesirable, and using the lens hood can prevent it.)

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MAGIC WITH PROPS

PHOTOGRAPHIC SLEIGHT OF HAND MADE EASY

BY ROBERT FUNK

Everything visible in this world can become a prop. Buildings, people, machines and animals all serve as subjects for the photographer. Yet, astonishingly, the photographer rarely sets a scene outside the studio completely on his own terms. He accepts the world around him as it is and seldom thinks of changing it for his own purposes. This is due in part to the many obstacles involved. It is hard to imagine moving the Empire State Building across town in order to get a better light on it, or even placing your favorite zoo animal in Grand Central Station during rush hour. Things like these are just plain impractical or downright impossible to carry out.

So what do we do? File our ideas in the dusty archives of our imagination and be content with accepting the environment the way it is? There's an alternative—we can innovate. A good shortcut, and one at which every Hollywood special-effects man is adept, is "going miniature," or substituting a prop for something real in nature. By doing this you can take charge of the important elements of your photo and not be dependent on everything in the setting. Like a still-life photographer, you begin to *make* your photos rather than *find* them. I say, "Cut your own silhouettes, paint your own models, get your own railroad car (miniature, of course) and bring them all with you for a shooting." Think of the added fun and control.

SILHOUETTES

Props you make yourself can cover an endless variety of sizes, shapes and types. I'll start with the silhouette because it is the simplest in structure, easiest to make and, according to some, the most effective in communicating a message. Since a silhouette is simply a backlit shape, it is all that is necessary for us to identify an object. Before we see color, form or texture, we see shape. This makes the silhouette a very powerful prop to use.

All that's needed to make a silhouette is a slide or overhead projector, a piece of opaque paper, and the patience to trace the contours of your projected image. Once this is done, simply cut the shape you have just drawn and mount it on a firm support. The larger the silhouette the stronger

the paper stock should be. If you expect to go five feet or larger, you might consider projecting on a piece of thin plywood or Masonite and using a jigsaw to cut it out. It's good business to make sure your props are durable and packed right. This will prevent any problems or disappointments before you arrive at your destination.

Once there, the ball game is yours. You have chosen a meaningful location. Now you will decide how to integrate it with the silhouette in a manner that you find aesthetically pleasing. Large silhouettes can be placed on the ground and supported from the rear with a stick. Small ones can be handheld. I find that small silhouettes work most effectively with wide-angle lenses (18-24mm for 35mm format), but I recommend you experiment. Through the use of silhouettes you can create a great sense of realism, but remember their use is limited to backlit situations.

CUTOUTS

A whole range of special effects can be obtained with cutouts. Sources for material include memorabilia, photo enlargements and images you can paint yourself. Like the silhouette, these should be cut out with a razor blade or jigsaw and mounted on a firm support. Attaching a stick to the back of the cutout will enable you to hold it in one hand and the camera in the other. This technique gives you a lot of freedom of movement and is good for shooting against moving backgrounds, such as parades or moving cars.

In situations where backgrounds are not moving, I recommend using a tripod to support your camera and cutout. You will sacrifice mobility but gain control, which is a very important advantage. The exact placement of your cutout within the frame is crucial to the success of your shot. You are creating an illusion of size and distance where a change in a few milli-

meters can be mistaken for a mile. For example, by holding a five-inch cutout of a man in front of a wide-angle lens (18-24mm) and shooting at a small aperture (preferably f/22 for maximum depth of field), you can make him look life-size or larger. The use of wide-angle lenses sharpens both the foreground and the background images, increasing the photo's believability.

Those of you who enjoy painting can make your own props. You don't have to be a trained artist to create a likeness of something. By using the slide-projector technique, it is possible to paint in and cut out your image with little more trouble than doing a painting by number. Photo No. 4 is a good example. I deliberately chose a subject with a graphic look to it. Why? Because it is easy to paint. Graphic images communicate more forcefully than those with a lot of modeling. I also simplified the color scheme and painted the bird with fluorescent colors. Moreover, this cutout is greater than life-size. Its juxtaposition with normal surroundings creates the effect of scale distortion. At first glance the viewer wonders, "Are the flowers too small or is the bird too large?"

LET'S NOT OVERLOOK THE BANAL

Staring us in the face every day is a huge, untapped and overlooked wealth of props. Toys, trophy statuettes, model trains, porcelain figurines—you name it. They are all icons of the commercial world and represent a fresh and even crazy source for photo ideas. There is no problem finding them, and there should be no problem shooting them.

It all sounds very easy. A photographer walks into a store, buys a red plastic teddy bear, walks out and shoots it. Bingo! Great shot! Not so easy. The more familiar the prop, the more it requires the photographer to deal with it in an imaginative way. As for the red teddy bear, first recognize its inherent caricature qualities and then exploit them. Try to bring out the red-teddy-bearness. In this instance you are dealing with pop-art subject matter, so try to work for a pop-art effect. I find that it helps to place it

1. A Miami Beach lifeguard smiles at a cutout of a bee placed before him. Cutout is four inches long; illusion of size comes from placing cutout very close to 18mm lens and shooting at f/22. (No tripod was used.)



There may be more
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The ME is the smallest, lightest, most compact 35mm SLR in the world. But we didn't achieve this by resorting to plastic materials, like some other leading cameras. The Pentax ME has solid, all-metal cover plates, so it can take a lot of abuse.



Total automation

To free you from as many operational procedures as possible, we've designed into the ME an exposure system so advanced, there is no need to include a conventional shutter speed dial.

Instead, you'll find our unique "shutter control selector." When it's set to "Auto," the ME goes into action as a totally automated, aperture-priority camera. You pick the f/stop. An internal computer picks the precise shutter speed and displays it in the viewfinder.

If you prefer a different shutter speed, simply turn the aperture ring until the speed you desire is displayed. You can do this in less time than it just took you to read about it. And you can do it without taking the camera from your eye.



Once the Pentax ME has decided on an exposure setting for you, you can still override that decision by up to ± 2 EVs. So even if you have a special effect in mind, or a peculiar lighting situation to deal with, you still have superb manual control.

Unlike shutter-priority cameras, the aperture-priority ME gives you full control over your depth-of-field. And even with a bellows or other components attached, the ME still functions automatically.

So even though the Pentax ME is fully-

automatic, it provides as much manual control and creative flexibility as you're ever likely to need.

The Pentax-Seiko shutter

The Pentax ME features a focal plane shutter jointly invented by Seiko and Pentax. It has received considerable recognition for its accuracy, minimal noise and vibration, and durability. This stepless, automatic shutter helps make the outstanding automatic exposure accuracy of the ME possible.



The panoramic viewfinder

We've taken the concept of TTL metering to its logical conclusion in the ME. The first thing you'll notice when you look into the viewfinder is just how big and bright the image is. The next thing you'll observe is a line of 16 small, solid-state, red LEDs. 14 of these indicate the shutter speed selected by the camera. And two of them indicate whether you're under- or over-exposed.

The light meter. A Pentax first.

Of course, no exposure can be more accurate than the light-sensing capability of the camera. And the light sensors in



the ME constitute a major design breakthrough, invented by Pentax in conjunction with Nippon Electric, and first used by Pentax.

They're called Gallium Arsenide Phosphide Photo Diodes (GPDs) and they're a significant improvement over any other light sensor. Even in radical light shifts they react 1,000 times faster than CdS cells. And unlike silicon blue cells, they are immune to infrared radiation. GPDs are extremely stingy with battery power and they can withstand almost any temperature change you'd encounter, without adverse effect. GPDs are definitely the wave of the future. Eventually, you'll probably see them in many SLRs. But we don't mind. We're used to being copied.

Long-lasting power

The two tiny 1.5 volt silver oxide cells will last an unbelievably long time, thanks to the electronic efficiency of the Pentax ME. The camera uses only 3V compared to the 6V required by most other LED readout cameras. Battery life in the ME is expected to last for over 10,000 exposures, even though the batteries power both the shutter and the light meter. You could shoot a 36-exposure roll daily for a year, without battery failure.

When battery power is low, our unique Battery Check Circuit causes the LED visible in the viewfinder to flash on and off, telling you it's time to change batteries. And even when the batteries are dead, you can still keep shooting manually at 1/100 sec. Some other leading 35mm automatics stop operating completely when the batteries die.

Precision lenses

A lot of SLRs have been made smaller lately, but unfortunately, their lenses haven't. Pentax, however, decided to design 19 new ultra-thin, ultra-light M-series lenses for use on the ME. Of course, our regular Pentax lenses also fit the ME. So there are over 40 interchangeable Pentax lenses available to cover any situation, from 2,000mm telephoto to 17mm fisheye. All have Pentax bayonet mounts, which are quickly becoming the standard of the industry. And all have Pentax Super-Multi-Coating, a process which we invented and perfected.



Action shots with the Winder ME

The Pentax ME accepts an automatic winder, the Winder ME, for smooth, quick, automatic film advance. You can attach it in seconds. It fires off exposures at up to 1.5 fps, or if you prefer, one shot at a time.

Dial Data ME back

The back cover of the ME is interchangeable with the compact, easy-to-use Dial Data ME back. With it, you can instantly convert your ME into a data camera,



recording the date, or, if you prefer, technical data such as aperture, shutter speed, and frame number.

At Pentax, we've made more major breakthroughs in 35mm SLR design and invention than any other company in the business. In the Pentax ME, we've continued the tradition. Someday, the advances we've incorporated into the ME may be the standard for all SLRs. But for now, they're only available with the original. The Pentax ME.

For more information write: Pentax ME, P.O. Box 2585, Littleton, Colorado 80161.

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3

ALL PHOTOS BY THE AUTHOR



4



5

MAGIC WITH PROPS

bam! right in the center of the frame and right in the viewer's face.

In general, the impact created by placing the prop up front and in the spotlight is something that I work for in my photos. In the shot of the model train (photo No. 3) I contorted my body to squeeze just below the railroad tracks in order to get an upward-angled view of the train. I used electronic flash for fill, which enhanced the graphic design of the warning sign and figure. The result may not be a piece of pop art but it sure pops.

Silhouettes, cutouts, paintings and toy models can all be very effective in creating the illusion of a real or unreal thing. They are always there when you need them and they never talk back. In short, you can have the world's most obedient models pose for you and you don't even have to worry about an hourly model's fee. □

2. A six-inch cutout of a girl kicks her leg high above passing paraders in Coral Gables, Florida. A strong direct light (which I use in most of these photographs) spotlights cutout and pulls it away from sky's saturated blue. An 18mm lens was used; cutout and camera were handheld.



6

3. Train is model-size, man's figure life-size, but selective camera angle (with 20mm lens) and lighting (electronic flash) create an illusion that fools both camera and viewer.

4. Incongruity of seven-foot-long bird in garden plays off blending of brilliant colors in both. Shot was taken with a 24mm lens; camera was mounted on a tripod.

5. A six-inch silhouetted cutout of a gunslinger stands beside the George Washington Bridge. I placed it directly behind the sun to avoid flare and to contrast lightest and darkest parts of photograph. An 18mm lens was used; camera and cutout were handheld.

6. Painted butterfly is 3½ feet long. It was illuminated slightly by an electronic flash to keep it in tonal harmony with background. A 24mm lens was used; camera was mounted on a tripod.

Take a walk through the new Vivitar 285 flash system.

Get to know the latest addition to the most complete family of fine flash systems available anywhere.

Start here



Come along. You'll see all kinds of interesting innovations in this, the newest of Vivitar flash systems. The Vivitar 285 Thyristor zoom flash offers a normal zoom Guide Number of 60 with ASA 25 film and built-in variable light dispersion to match the coverage of your camera lens—from wide angle to telephoto. It also gives you easy to use automatic bounce flash. But let's really look it over.

3. Up this way we've got the **Calculator Dial**—zoom coupled and self-compensating. It not only tells you the minimum and maximum auto distances but changes automatically as you switch from one zoom position to another. (We'll show you the zoom head a little later in the tour.) The dial also shows you how to set **The Vari-Power System** that lets you reduce light output levels from Full to $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$. Great for outdoor fill-in flash, multiple flash, faster recycle time, faster action freezing or for use with a specific f-stop.



1. First stop, the **Removable Vari-Sensor Module**. Four auto operating ranges and a solid state computer that delivers the right quantity of light for the right exposure, whether you're shooting direct or bounce flash. Plug the sensor module into the optional sensor connecting cord and you've got automatic bounce flash in any direction.

2. The Vivitar 285 can be used with several **Power Sources**: 1.5 volt AA Alkaline batteries; NC-3 NiCads for fast recycling can be recharged in just 15 minutes with the optional Vivitar Charge 15; the Vivitar SB-6AC Adapter and the LVP-2 Low Voltage Battery Pack. This pack gives you more flashes than any other battery source. Important, too, the 285 has a built-in battery saving circuit along with energy-saving Thyristor circuitry.



5. Right under here on the **Vari-Sensor module** is the **Mode Selector Dial**. This sets up the 285 for manual or automatic operation for four different f-stops and Vari-Power Selection.

4. Okay, move down here now and you'll see that the 285 tilts to any of five "click" positions: 0°, 45°, 60°, 75°, 90°. Use the latter four positions to bounce light off reflective surfaces for softer lighting.

6. The green light up there is the **Sufficient Light Indicator**. It lets you know before you take a picture if you've got enough light for proper exposure.



7. The **Optical Zoom Flash Head** has three settings, wide (35mm), normal (50mm-55mm), and tele (105mm and longer). Besides matching flash coverage to your camera lens coverage, guide numbers change as you zoom — wide produces a lower number, tele a higher one. In tele, automatic flash pictures are possible out to 70 feet!

8. That white button up there lights up the **Calculator Dial** so you can see what you're doing when it's too dark to see.



9. Look here and you'll see the unique ready light. It has readout in three informative stages: red means half power; green ready to fire;* alternate red and green blinking means the battery saving circuit is functioning.

10. This last button down here is important. Push it and it pops a flash that ties in with the Sufficient Light Indicator. It informs you if the flash is ample enough for proper exposure before you take the picture.

Now that you've walked in and around the 285, we think that you might like to see one in person. Walk into your dealer and see the Vivitar 285 Zoom Thyristor Flash and its system of accessories. It's part of a whole family of Vivitar flash systems... And while you're at your participating Vivitar Dealer, ask for a copy of *Advanced Lighting Techniques with Vivitar Electronic Flash Systems*, a booklet with examples of creative flash photography complete with lighting diagrams and full descriptions of how the photographs were created.



Great idea!

*Specifications based on current ANSI or ICH standards.
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Imagine the pictures you can get with a fast, $f/1.9$ lens and ASA 400 film in a camera you can take virtually anywhere.

Now, for less than \$90, you can own Kodak's most advanced, versatile pocket camera. A camera to use indoors and outdoors, in bright light, dim light, and even no light with the built-in electronic flash.



New $f/1.9$, four-element, aspheric lens.

Breakthrough in lens design.

Seldom is a lens of this quality available in a camera at this price. Wide open and stopped down, it can produce negatives with edge-to-edge sharpness and minimal aberrations. One reason is the Kodak lens is made with an aspheric element.

Until now, aspheric-element design has been limited to a few, very expensive supplementary lenses.

Sports-type viewfinder.

Here's a full-information viewfinder little short of amazing in a pocket camera. It's remarkably large, bright, and free of distortion. The field of

vision is 110% of the picture area, which is outlined by a projected reticle with parallax correction marks.

You'll appreciate this feature when shooting in dim light, following action, or if you wear glasses.



Sports-type viewfinder displays focus and exposure data.

Eye-level picture-taking data.

In the viewfinder, you also see a unique 5-position focusing aid, plus exposure settings. You can focus and adjust exposure without taking the Ektramax camera from your eye.



Built-in electronic flash recycles as fast as 2 seconds.

Built-in electronic flash.

The integral flash is so unobtrusive, you're hardly aware of it. Yet, it produces an effective flash range of 20 feet with ASA 400 film. Recycling time is an amazingly brief two seconds with fresh batteries. And those batteries will power at least 200 flashes. The blinking

"ready" light, visible in the viewfinder and on the outside of the camera back, is also a reminder to turn off the flash.

Check it out at your dealer's.

In many ways, the new Kodak Ektramax camera is a joy to handle. The fast-action shutter release is firm and precise. (That also helps reduce picture blur due to camera movement.) You focus with a smoothly operating wheel that fits nicely under your fingertip. And, there's a protective sliding lens/viewfinder cover you can't misplace.

There's also a price that's astonishing for so much camera—less than \$90.



Fast-action shutter release, firm and precise.

SPECIFICATIONS.

Film: 110 cartridge film, 13 x 17-mm format. Automatic adjustment for ASA 400 and ASA 100 film. **Lens:** 25-mm $f/1.9$, four-element, aspheric lens.

Focusing: continuous, 4 feet to infinity with viewfinder focusing aids. Feet/metre focus scale. **Shutter:** five-speed, 1/30 to 1/350 second. **Flash:** built-in electronic flash powered by 2 AAA-size batteries.

Weight: 7 ounces with batteries.
Size: 1 1/4 x 2 1/4 x 6 3/4 inches.





An EL Nikkor lens is an inexpensive way to add Nikon quality to your enlarger

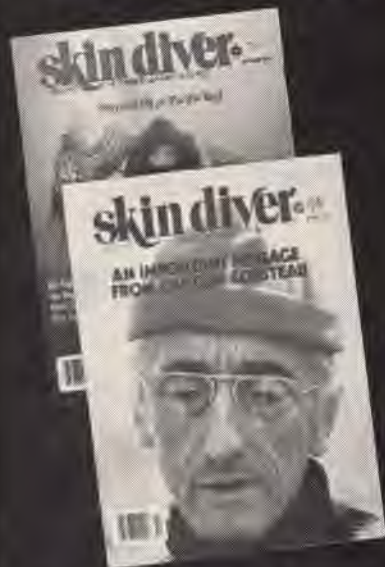
You take special care with your photography. You invested in a fine camera. You're on the button with your focus and exposure. And, your negatives are everything they should be. But, when you put them into your enlarger, something happens. The crisp definition, the wealth of detail, the rich colors you know are there, just aren't — not in the prints.

Very likely, the villain is your enlarger lens. (Honestly now, did you choose it as carefully as you did your camera lens?) It actually may be "filtering out" the quality in your negatives, instead of faithfully reproducing it.

The solution is as simple as it is inexpensive. Get an EL Nikkor enlarger lens. It's made by Nikon, specifically for the finest color and b&w enlarging. With designed-in sharpness and color correction to meet or exceed the most critical professional requirements. And, there's no focus shift when you stop down, which is made easy by positive click stops and easy-to-see white aperture markings.

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THE Y·O·B SYSTEM, PART II

BUILDING AND USING THE EVALUATOR

BY PARRY C. YOB

Last month we determined the density range your enlarger requires in order for you to get the most from your enlarging paper. By now you have probably discovered that most enlarging systems require a considerably greater density range than has been generally accepted, and you may be wondering why. Some readers may have rationalized the differences, but it is too early to be worrying about such things at this time. It is more important that we move on to the problem of making actual negatives containing the density ranges shown by our previous experiments to be required by our enlarging equipment.

The chief problem in evaluating photographic materials is the lack of real and usable standards that can be translated into everyday photography. There is a whole science of sensitometry built on the work of Hurter and Driffield, but ever since they did their work in the late 1800's scientists have argued about the usefulness of such things as gamma, contrast index and G-bar. In a later series of articles I will go into the whole subject of making and using densitometers and sensitometers, but for the present it is enough to say that the standards established by sensitometry often do not translate directly into useful information because the methods of exposing and developing the materials upon which those standards are based have little relation to what happens in a camera outdoors or in a reel-type film tank under normal darkroom conditions. Photographing gray scales, gray cards, etc., can be even more misleading. The gray-scale plaques will yield certain reflection densities when subjected to laboratory instruments and very different densities when placed at an angle to the glaring sun. More important, the significant areas of most photographs are composed of shadows and colors rather



than patches of gray on a flat surface.

Do not misunderstand me. I do not mean to say that there is no relationship between sensitometry and the results you will obtain with the Yob System. Quite to the contrary, if you own an accurate densitometer, you can use the evaluator to produce the most meaningful test samples your instrument has ever seen. However, since many readers will be using 35mm cameras, the densitometer would be impractical for use on their small negatives. Negatives from the evaluator can be used to plot all of the values normally considered, and in a later article in this series I will discuss the methods of doing this.

THE EVALUATOR

In order to make meaningful comparisons from year to year and from film to film, we have to establish some sort of a standard that will remain available

to us every day of the year and can be reconstructed if destroyed. This rules out the idea of taking pictures of some building, mountain or person and using these for reference. The standard we photograph should be no farther away than our own back yard and portable enough to transport from place to place. In addition, it must be capable of presenting a full range of light conditions from the glare of the whitest white to the black of a black surface in heavy shadow. It is most important that there be grays and blacks that are the result of true shadows, not the reflection of pigments on a gray scale. To combine all these features I have designed a simple structure I call the Yob System Evaluator (which I will refer to from here on as the "evaluator").

The evaluator can be used indoors or out, but for now we will discuss only its outdoor use. On a clear, sunny day the evaluator presents to the camera a range of nine stops, which is greater than is encountered in most photographic situations. The lightest values come from reflected white highlights just as they do in any true photographic situation other than the night photography of electric lights. The middle value, corresponding to the O in the Y-O-B tests, comes from a true shadow on a white surface; and the darkest value comes from a black surface in deep shadow just as it would in a natural scene. In addition, provision has been made for intermediate values useful in certain scientific tests with densitometers and in the evaluation of certain color films.

Once you have begun to use the evaluator for making comparisons of films and techniques in combination with the absolute standard, you will also be able to use it to monitor the performance of your equipment. For this reason, you should have your camera shutter calibrated if at all pos-

Y·O·B SYSTEM

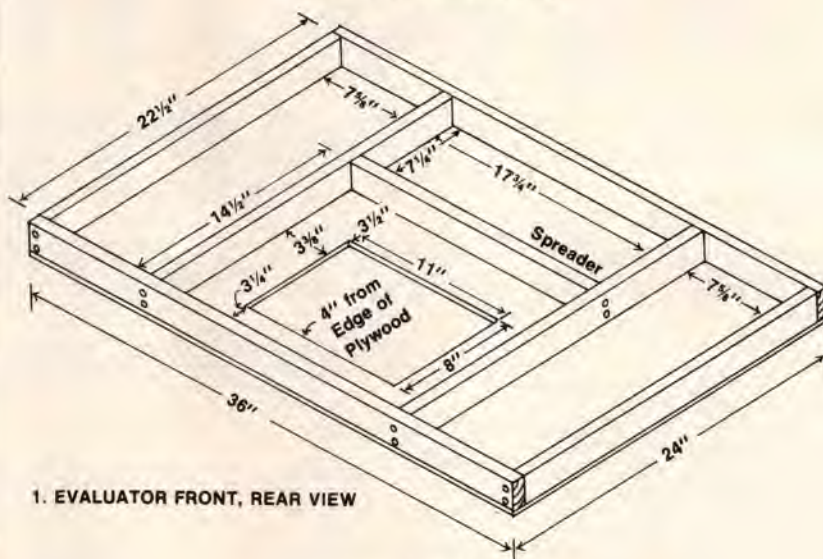
sible, and have the repairman provide you with actual shutter speed data, not some vague assurance that it's within factory tolerance. You should also check your meter to see that it functions linearly under a complete range of conditions. In the June, 1978 issue of *PhotoGraphic I* provided construction details and instructions for using an inexpensive meter checker that allows you to calibrate your meter yourself. It is essential that you either have a completely linear meter or know the errors in your metering system in order to determine the Y-potentials of your subjects as well as the Y-potential of the evaluator.

With this evaluator, as with the absolute standard in the previous article, there are no aesthetic values to confuse you. This is essential to objective evaluation of your results. The only beauty lies in its simplicity. The evaluator provides a standardized test subject designed not only to give Y_m values, B values, and Y potentials, but it should help you to recognize the B-value or the O-value area in a real photographic situation and understand their relationship to the average scene or the average meter reading. Photographing this test scene will enable you to adjust your film processing to fit the requirements revealed by your absolute standard. Finally, it will teach you that in photography the three most important values are black, white, and the average "O" point to which all metering systems are calibrated. In a real photographic situation, whether black-and-white or color, all other light and color values will fall wherever they were put by nature, and in general they will maintain the same relationship to the white Y_m value and the O value or the same ratio to that relationship no matter how much tinkering we do with processing. Since tinkering with the processing of individual frames on a roll of film is not practical, the Yob System has been designed to avoid processing changes as we move from subject to subject. There will, of course, be initial calibration adjustments in processing and/or exposure, but the tinkering ends there.

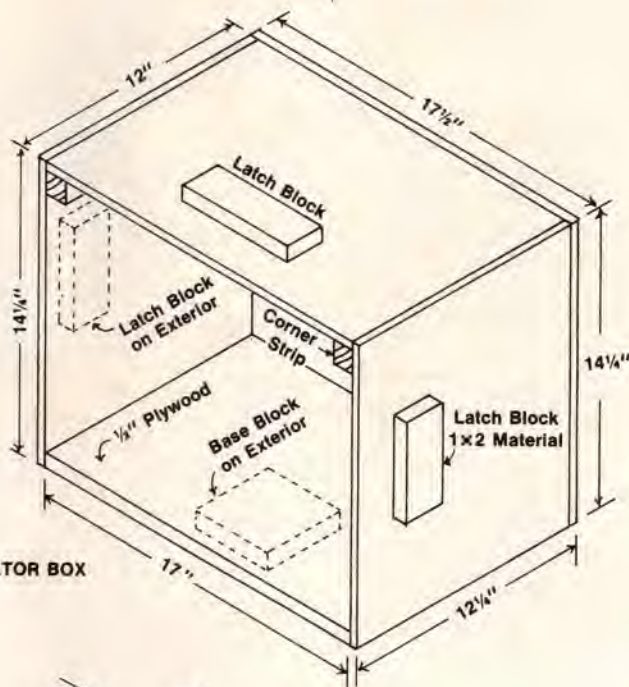
BUILDING THE EVALUATOR

There is no precision required in the construction of the evaluator since its dimensions were arbitrarily chosen so that the front of the unit would have the same number of inches in length and width as there are millimeters in

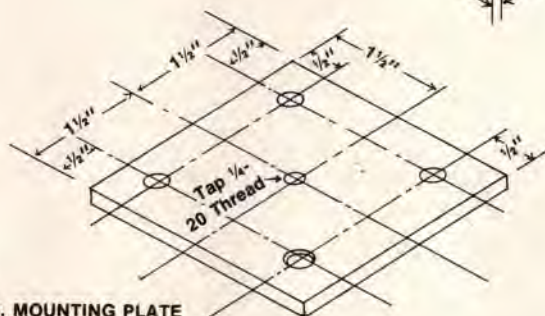
EVALUATOR CONSTRUCTION



1. EVALUATOR FRONT, REAR VIEW



2. EVALUATOR BOX



3. MOUNTING PLATE

©Parry C. Yob 1979

1. Dimensions and locations of frame members are shown here. Note that 3 1/4-inch measurement is from bottom of hole in plywood to inside edge of frame.
2. Notice that bottom, top, and side pieces are all 12 inches wide. Bottom piece is made from 1/2-inch plywood, while sides, top, and back are 1/4-inch material.
3. Mounting plate, made from 1/4-inch hot rolled steel or purchased complete from Saunders Photo/Graphic, attaches evaluator to pan head of a standard tripod, where it will normally be used. Drill all holes with a No. 7 drill. Notice that only center hole is threaded (for 1/4-20 screw) while outside holes are countersunk 82 degrees for wood screws. If you don't own a countersink, you can use a 3/8-inch drill as a countersink by running drill into hole until outside edges of drill just begin to cut into metal.

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LIGHTING

How has lighting changed since the 1950's? What are the six main kinds of lighting? What's the easiest way to tame harsh sunlight? When is bounce light most effective? Tent lighting? How do you control electronic flash and auxiliary light?

COLOR

How many color compensating filters can be used together? What does it mean if your prints turn out too dark? Too green? What is the simplest way to print color from transparencies? How do you protect prints against color loss and change?

FASHION PHOTOGRAPHY

How do most fashion photographers make their reputation? How do you book a model and what's the biggest problem most photographers have when using models? What are the special advantages of long lenses? Who pays for reshooting?

BLACK-AND-WHITE

What are the four color sensitivity classes of black-and-white films? What are the advantages of each? Experienced photographers can usually tell you the quality of a black-and-white negative just by looking at it; can you? How do professionals judge print quality?

PROCESSING

What are the advantages of drum and tube processing over tray processing? What are the five major steps in reversal processing? What causes aerial fog on a negative? If your prints show small, sharp brown spots, what should you add to your darkroom equipment? How can you recover the silver from your processing wastes?

LEGAL ASPECTS OF PHOTOGRAPHY

When and from whom must you obtain releases, and what are the exceptions to the rule? Must you get a release from a model you've hired? How do you protect yourself against lawsuits in case you accidentally injure someone or damage property? How do you protect your rights in the pictures you produce?

CAMERA AND LENS CARE

What are the six simple items you need for an efficient cleaning kit? What should you do if parts "set"? How do you clean a camera's interior? Why should you *not* dry out a piece of equipment that falls in the water, and what should you do instead? (The answer will probably surprise you.)

PHOTOGRAPHING IN BAD WEATHER

What kinds of pictures often turn out better on hazy days? Why should you shoot fall foliage in the rain? What's the difference between high-density and low-density fog, and how do you adjust for it? How do rainbows record best?

SETTING UP A PHOTO BUSINESS

How do you determine how much capital you'll need to start? Operating capital? Why is a market survey essential before you begin, and what are the two best places to look first? How do you figure estimates in advance?

FREELANCE PHOTOGRAPHY

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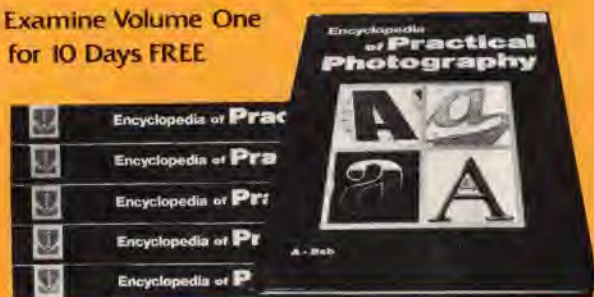
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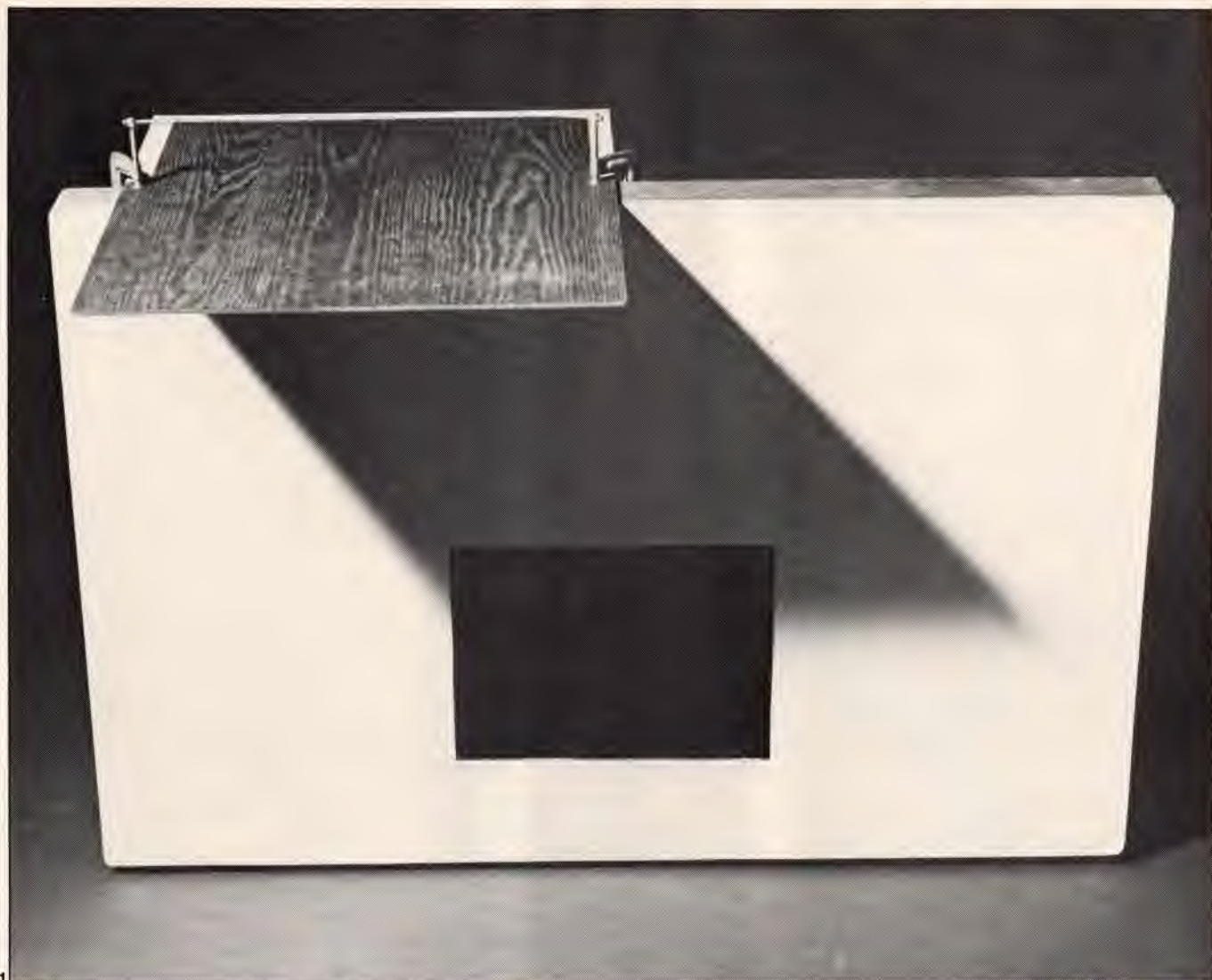
Y.O.B SYSTEM

the standard 35mm frame. The 35mm
film dimensions are 24 × 36mm, so I
chose 24 × 36 inches to make it easy
to shoot full-frame pictures of the eval-
uator with no waste areas on the film.
You will see from the drawings that the
unit is designed to come apart into two
pieces, which makes it much easier to
mount on a tripod where it is normally
used. In addition, it makes for ease in
original painting as well as touching up
later.

Diagram No. 1 shows the front of
the evaluator face-down in the same
manner as in photo No. 2. First cut a
24 × 36-inch piece of 1/4-inch ply-
wood, and place it on the floor. If the
floor is rough or dirty, cover it with
several layers of newspaper. The ply-
wood should be of A-D or similar
grade that has one good surface. It is
important that the evaluator's front sur-
face be smooth, without bumps, knot-
holes or other defects; but the other
surfaces of the evaluator need not be
as good. Next, cut lengths of 1 × 2
clear pine or fir lumber to the dimen-
sions shown in diagram No. 1. Note
carefully the way the pieces fit to-
gether and place them in the corre-
sponding positions on the back of the
plywood, but do not nail anything yet.
If you have cut all the pieces properly,
they will fit together as in the diagram
and photograph. Do not attach the ply-
wood, but use white glue and finishing
nails to assemble the frame as shown
in the diagram. You will find it easier to
nail two 22½-inch pieces to the 17¼-
inch spreader, then drop it into the
frame and nail the 22½-inch pieces to
the 36-inch pieces.

After the glue has dried lay the
frame on the back of the plywood so
that all the edges are flush with one
another. Using the frame as a refer-
ence, mark out the outline of the 8 ×
11-inch hole on the back of the ply-
wood. Remove the frame and drill 3/8-
inch or larger holes just inside each
corner of the hole outline. The edge of
the hole should barely touch the two
side lines. Now use a sabre saw (elec-
tric scroll saw) to cut along the lines
on the back. The holes allow the blade
to be inserted and turned, and once
the center piece has been cut free, the
corners of the hole can be trimmed out
square.

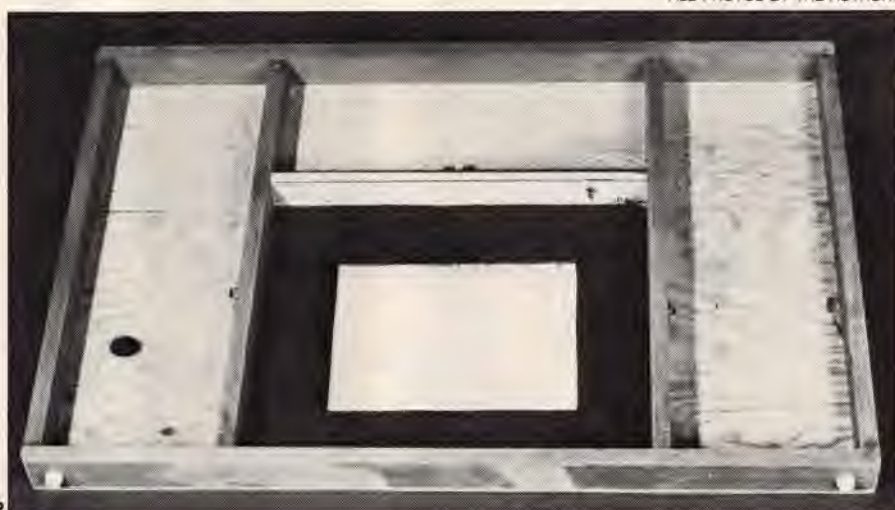
Now place the plywood on the front
of the frame with the good side away
from the frame, align the frame with
the plywood so that all edges are flush,



ALL PHOTOS BY THE AUTHOR.

1. This shows the evaluator front in its simplest form. The lower edge of the shader's shadow is breaking up into the umbra and penumbra because a single flash head in a ten-inch reflector was used to light the subject from a distance of about seven feet. The shadow does not break up when the unit is used outdoors because the sun is a point source of light that casts sharp shadows on clear days. More information regarding studio lighting will be included in a later article in this series. Notice how the shader is positioned on the top of the evaluator frame and held with C-clamps. In the original print some differences in density (whiteness) can be seen between the top and bottom of the evaluator front due to reflection from the seamless paper on which it rests. Normally the evaluator is used on a tripod to eliminate such reflections, but the ceiling in my studio is too low to allow raising the evaluator above the floor and getting the light high enough to cast the shadow in a realistic position.

2. Rear side of evaluator front. A white card has been placed behind the hole to contrast with the black painted area surrounding it. The bottom of the evaluator is at the bottom of this photo.



then nail the plywood to the frame using small finishing nails or one-inch brads. Sink the nail heads just below the surface of the wood so that they will not protrude and cast shadows when the unit is in use. Set the completed evaluator front aside, but do not paint it at this time.

The evaluator box is designed to be as lightweight as is practical; you will

notice that only the bottom of the box is made from $\frac{1}{2}$ -inch plywood. The sides, top and back are $\frac{1}{4}$ -inch plywood, given additional strength by the two $\frac{3}{4}$ -inch-square strips in the upper corners of the box. These pieces are 12 inches long; the plywood is glued and nailed to these first, then attached to the bottom of the box. The back piece goes on last, and if necessary it

can be pieced together, as mine was, from scraps of $\frac{1}{4}$ -inch plywood. If there is a seam in the middle from such piecing, cover it with another strip of plywood.

Photo No. 3 shows the open front of the box after painting. The ends of the square corner strips have been left unpainted here so that their position is clear in the picture. Notice the location

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Y.O.B SYSTEM

of the latch blocks, which are cut from scraps of 1 x 2 lumber and attached to the sides and top of the box, using glue and nails. Before attaching these blocks, the box should be completed except for painting, then its open front should be shoved into the frame just behind the hole in the front of the evaluator. The outside dimensions of the box are just a tiny bit smaller than the opening of the frame if you have kept things square when making the box and frame. Be sure to place the box in the frame so that the 1/2-inch-thick box bottom is against the outside frame at the bottom, as shown in photos No. 4, 5 and 6. With the evaluator lying on its front, make sure that the front edge of the box is against the back of the plywood evaluator front. If the box jams going into the opening because your dimensions are off a little, sand away the outside of the box, using coarse sandpaper on a wood block or a power sander if you own one, until the box slips into the opening. A loose fit won't hurt anything, but too tight a fit will cause you grief every time you use the evaluator.

When the box fits all the way into the opening in the frame, draw a line along the outside of the frame on the plywood all the way around the outside of the box. Then attach the latch blocks so that their front edges are about 1/16 inch behind the line you have just marked. The blocks should be three to four inches long and positioned, by eye, as near the center (between the corresponding edges) as practical.

Now cut a 4 x 4-inch piece of scrap plywood and make a 3/4-inch hole completely though its exact center using a wood bit or a hole saw. Glue and nail this base block to the outside of the box bottom so that it is exactly centered between the two sides of the box, and its front edge is about 1/32 inch behind the line you drew when placing the latch blocks. This placement is important because it makes the whole unit balance properly on the mounting plate during use.

Near the rear edge of the box bottom at the approximate center glue a two-inch-long scrap of 1 x 2 lumber (to which the back rubber foot will later be attached).

Next attach locking latches to the latch blocks so that the moving part is attached to the block and the other part of each latch is attached to the

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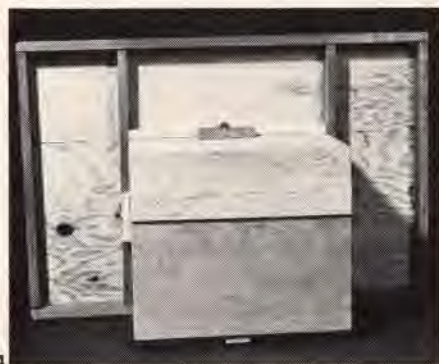


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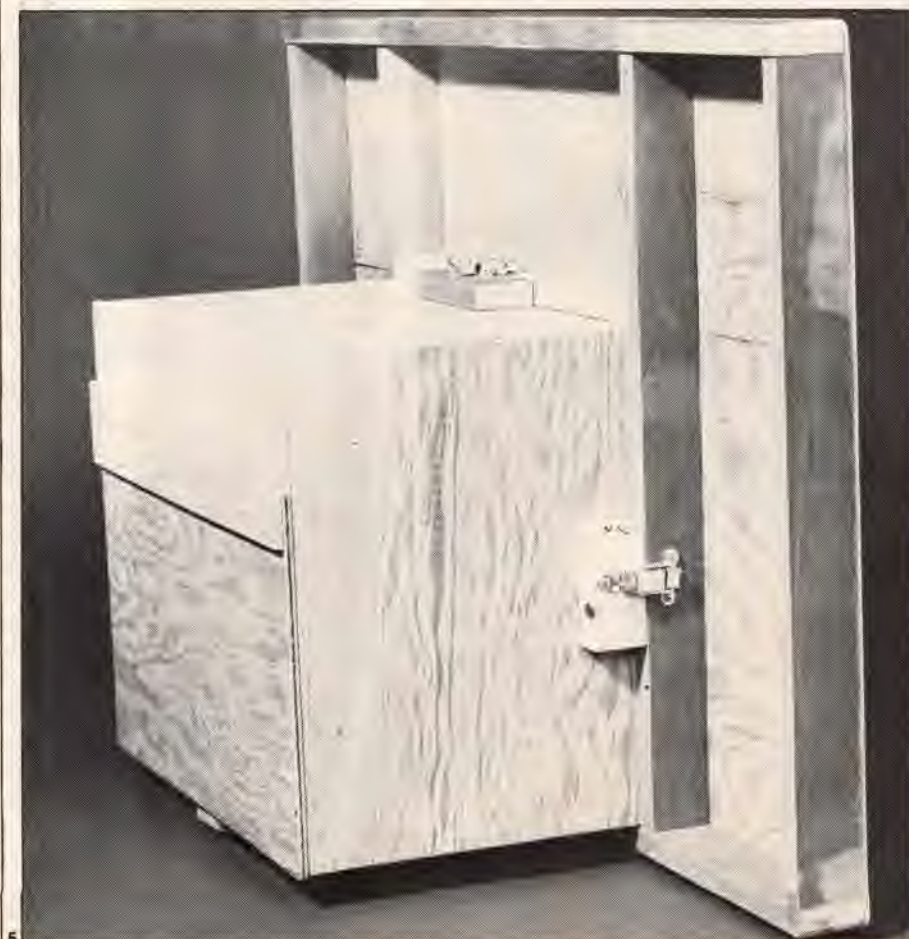
3. Evaluator box showing latch blocks and latches in place. Note white squares in upper corners of the box—these are the ends of the $\frac{3}{4} \times \frac{3}{4} \times 12$ -inch strips to which the plywood is attached.

4. Rear view of evaluator. Plywood strip on back of box covers a seam created by using leftover pieces for economy.

5. Side view of evaluator rear with box latched in place.

frame at the appropriate position. These latches draw the evaluator together as they close, but screen-door hooks and eye screws can be substituted if you wish to save money.

At this point you can either make your own baseplate, working from diagram No. 3, or if you don't have a drill press and don't want the hassle of going to a metal dealer, you can order a No. 1 Yob plate from the Saunders Company at the address given in the parts list. The plate you make yourself will be attached with one-inch No. 9 flat-head wood screws, but if you buy your plate from Saunders, you can use either No. 9 or No. 10 screws. Since most readers will have access to the simple woodworking tools needed to build their own evaluator, but many will not have metalworking tools, I have arranged with the company to supply these plates at a very reasonable cost. Photos No. 6 and 7 show the location of the plate on the base block and the base block in relation to the rest of the bottom of the evaluator. After attaching the plate, attach the three rubber



5

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Y.O.B SYSTEM

screw-on feet, one to the rear block and the other two to the bottom of the frame.

Using photo No. 2 as a guide, paint the back of the plywood of the evaluator front in the area between the inner frame members. This is the black area, surrounding the hole, in the photograph. The hole area is white in the photograph simply because I placed a white card behind the hole to provide contrast in the picture. Paint this area with two coats of flat black exterior latex or acrylic paint, and paint the interior of the box with the same paint. When the black paint is dry (and don't forget to paint the edges of the plywood around the hole), you are ready to paint the front of the evaluator. If you have spilled black paint anywhere on the front of the plywood, carefully sand the plywood with fine sandpaper until all of the paint has been removed, then clean away the sanding dust before painting. Give the front of the evaluator two coats of flat white acrylic or latex paint. The kind I use dries in about 30 minutes and is ready for the second coat in less than an hour. After the second coat has been applied, allow your evaluator to dry for about 24 hours so the paint will be thoroughly cured before use.

For the record, I used Martin-Senour Company's White-White No. 728-7100 Flat Latex Wall Paint (interior), but I do not consider this to be at all critical so long as the paint you use is really white and not an off-tint, and it is a truly flat paint, not a gloss or semigloss of any kind. Gloss paints will not do because they create reflected specular effects, which not only cause problems with uneven negative densities but are more apt to reflect colors of nearby objects. I suggest that you apply the first coat of paint with the grain of the wood, using a brush, and paint the second coat across the grain, again using a brush. Using a spray gun here would simply mess up the rear black part of the unit.

To complete your evaluator you'll need two one-inch C-clamps, one three-inch C-clamp, a 16 x 20-inch piece of tempered ½-inch Masonite (hardboard), and a set of Kodak gray cards. The Masonite is used as the "shader" for the evaluator and is clamped to the top frame with the one-inch C-clamps as shown in photo No. 8. C-clamps may seem impractical at first, but their use allows complete freedom in positioning the shader to



6. Bottom view of evaluator shows location of rubber feet and base block. Notice that rear foot is on a small square of one-inch lumber so that the surfaces of all feet are higher than the face of the steel mounting plate.

7. Mounting plate on base block. Note that base block almost but not quite touches the rear side of the bottom frame member.

8. This is one way to mount the 16x20-inch Masonite shader on the top frame. C-clamps allow the shader to be positioned anywhere it is needed; two one-inch or larger clamps are needed to hold the shader in any position.

allow proper shadow placement regardless of time of day. Normally the shader will be placed somewhere along the top of the evaluator frame, but if necessary, it can be clamped to the edge on either side for use very early or very late in the day. Likewise, the three-inch C-clamp is used to hold one of the gray cards in the selected position, as will be discussed next month, and here the use of the clamp eliminates the need for protruding nails or structures on the front of the evaluator where they would create unwanted problems.

Next month I'll show you how to use the evaluator to test your present exposure and processing techniques and how to go about adjusting them to get the necessary density range in your negatives—the range of values that was predicted by the absolute standard arrived at in the first article in this series. □



PARTS LIST

- ½ sheet ¼-inch A-D or better plywood
 - 1 x 2-foot piece ½-inch plywood
 - Two eight-foot lengths 1 x 2 clear pine or fir lumber
 - 3 x 3 x ¼-inch piece hot-rolled steel plate*
 - White glue
 - One-inch brads or finishing nails
 - 6d (penny) finishing nails
 - Four one-inch No. 9 flat-head wood screws
 - Three trunk-type locking latches with screws
 - No. 7 drill (optional for mounting plate)
 - Flat black latex paint
 - Flat white latex paint
 - Three screw-on rubber feet
 - Two one-inch C-clamps
 - Three-inch C-clamp
 - Package of Kodak Neutral Test Cards (Kodak Catalog No. 152-7795)
 - 16 x 20-inch piece ½-inch Masonite
- * You can order the adapter plate already drilled and threaded from Saunders Photo/Graphic Inc., P.O. Box 111, Rochester, N.Y. 14601. Order a No. 1 model "Yob adapter plate." The price is \$1.95 plus 25¢ postage and handling.

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PRODUCT PROOF sheet



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UNICOLOR EXPOSURE AND COLOR ANALYZER IS HERE

The Unicolor Model 220 Exposure and Color Analyzer is suitable for all color materials and will determine exposure time, paper grade, or variable-contrast filter settings for black-and-white printing. Uniquely programmed, the system uses an illuminated 110mm pivot-and-jewel meter as a voltmeter to read out linear program values, permitting the use of full-range 25-turn potentiometers for greater accuracy in both programming and reprogramming. Standard with the unit is an optically cosine-corrected fiber-optic probe that is small and has the light-reading aperture located on its surface. The 3mm aperture is designed for both spot and integrated readings. Other features include white-light overload protection, a reprogram switch and a light diffuser. The suggested retail price for the Unicolor Model 220 Exposure and Color Analyzer is \$350. For more information contact Unicolor Division, Photo Systems, Inc., 7200 West Huron River Drive, Dexter, Michigan 48130.



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(Continued on page 93)

Please mention PhotoGraphic Magazine when inquiring about the items listed in "Product Proof Sheet."

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HOW IT
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COLOR

"We live our lives in color, not black-and-white," says *Newsweek* publisher David Auchincloss. *Newsweek* photographers now shoot more color since the magazine expanded color use for news coverage. John Szarkowski, director of photography at New York's Museum of Modern Art, observes in the art scene an "emergence of a new and confident acceptance of the potentials of color." And across the country statistics reveal a significant increase in the number of amateurs taking photographs in color as compared to black-and-white.

With all the color film pumping through cameras, I know many photographers who are asking, "What exactly does color do that black-and-white doesn't? What's all the hoopla about? How can color be used most effectively?"

I decided to actively explore the answers to these questions the day Ted Schiffman appeared at my office with his Kenya pictures. With identical photographs in black-and-white and color, I used Ted's images to make a direct comparison between the two (at least as applied to documentary photographs). I paraded around Petersen's New York offices collecting reactions from everyone in sight, including the after-hours custodial staff. First I presented the black-and-white, then unveiled the color. Reactions to the color images were unanimously more intense. Eyes widened, faces lighted up, and smiles replaced clinical analyses. I heard a lot of "oh wow"s. The color image is more striking, more attractive and more revealing. A light shade on the Masai woman's face in the black-and-white photo becomes a bright splash of orange in color; the beadwork scintillates. Details come alive. The photograph is more *real*.

I'm not advocating closing down black-and-white darkrooms and trading in rolls of Kodak Tri-X and Ilford HP-5 Films for color. No indeed. Black-and-white is an important tool of photography and has established its place. Color is just a different, more recent tool and only beginning to establish its place.

Though introduced a century ago, color has only become viable in recent years due to—at last—improved films, newer techniques, better stability, and greater accessibility. And now that color has "arrived," it is thundering into every area of photography. In fact, in certain areas, such as news coverage, color has become essential

because, as Auchincloss notes, "Color television has made color the natural, accepted thing in photographic reality." Yet color has flooded the picture world recklessly. "Most color photography, in short, has been either formless or pretty," criticizes Szarkowski. "In the first case, the meanings of color have been ignored; in the second, they have been considered at the expense of allusive meanings."

Color is complex and difficult to understand and to control. "A bad black-and-white photograph is less offensive than a bad color one," says color photographer Michael DeCamp. "A bad color photograph is *very* bad color." Color can be blatant and in many ways distracting. In the black-and-white picture of the Masai girl, you'll most likely be drawn in to consider the emotional moment reflected in her pensive gaze. In color, the pensive quality is lost in the burst of gay colors. While you glean more information about her beads and clothing, your inclination to examine or even notice her facial expression is lessened. Color adds valuable information but at the same time becomes decorative. It changes the composition of a picture. Notice how the contour of her face is transformed by the added color.

Obviously colors serve a multitude of purposes. To help get your hues under control, I've prepared an overall guide to color, its meanings and purposes. This is by no means a technical manual, but rather an intensive look at effects of color and ways of applying it to make better photographs. In addition, I've briefly listed specific methods for adding color to your photographs. (There are more ways than just loading your camera with color film!)

PSYCHOLOGY OF COLOR

Whether you like it or not, you are responsive to colors. They affect you. Psychological studies show that you're likely to be more relaxed in a room decorated in muted greens than one in bold oranges. Warm colors—reds and oranges—are the most active, exciting hues of the spectrum. Cool colors—greens, blues and purples—are passive and tranquilizing. Hues of red can induce tension and hostility. Blue shades can promote a mood of calmness.

Some bases for these reactions are physiological in nature. In controlled test situations, subjects have shown an increase of pulse rate, heartbeat and

1. Using the psychological implication of the color blue, Glen Heller creates a feeling of space. He used infrared film without filters. ©Glen Heller

2. How would you read this image? What does the portrait communicate to you about the young woman of the Masai tribe in Kenya? How do you respond to her? Turn the page to photo No. 6 and see the transformation in color and its impact. ©Ted Schiffman



2

COLOR

respiration when placed in an environment of warm colors. When immersed in an environment of cool colors, people react in a different manner—the autonomic nervous system slows down. Reportedly, industrial psychologists who have gone so far as to explore effects of color on workers' efficiency claim that workers actually spend less time in lavatories painted red than those painted blue!

But contradictions occur. While green is a quiet, calming color as viewed in a serene landscape, when it's applied to flesh tones in a portrait (as often occurs when photographing under fluorescent lights), you'll probably find the color extremely disquieting. Since you're accustomed to warm-toned skin colors and not "ghoulish" green, the appearance is ghastly and gruesome. Color responses are highly subjective and influenced by such things as culture, experience, genetics, religion, and even climate. Among North Americans, research has revealed a common order of color preferences to be: blue, red, green, violet, orange, yellow. Yet women show slight preference for red over blue. Personality-preference surveys reveal that extroverts prefer red while introverts like blue. And depressed people usually show a complete lack of color interest; hence, they're in the "blackness of despair." Yes, even our language shows the psychological effect of colors. Consider the suggestive meanings packed into "in the pink," "blue Monday," "red hot," "green with envy," "purple prose."

Knowing these psychological effects of color, you can clearly understand how visual language—photography—uses color symbolically to establish impressions and moods and to speed up communication. As Auchincloss points out, advertising photography strongly relies on color for its suggestive association—to attract attention and evoke a particular emotional response—and for its realistic quality.

Which colors are associated with what emotions? Here's a general rundown: *Black* is considered gloomy, sorrowful, empty and associated with death and mourning. *Red* is anger, passion, fire, blood and associated with danger, courage, vigor, love. *Blue*

is cold, subdued, spiritual and contemplative. *Yellow*, associated with sunlight, is cheerful, vital, inspiring. *Green* symbolizes abundance and is restful. *Brown* is a rich earth color. *Purple* represents dignity and splendor and is associated with reverence of mourning and mysticism. *Orange* is lively, funny, exuberant. *White* is cool, youthful, spirited and associated with purity and zest.

Artist Glen Heller chooses blue if he's after the effect of something out of space or of the unconscious. If he wants to use red, it usually has to do with wanting to project a sense of anger. He consciously controls his palette to evoke the feeling he wants.

Similarly, Oregon commercial photographer Gary Braasch works to balance colors in a composition. If too much red stimulates unwanted tension, he'll move the camera to include more blue or balance with a restful expanse of green. For a vibrant posterlike landscape he might use the high contrast of a brilliant orange sunset against a deep blue body of lake water. For a more traditional landscape, subtler, more diffused colors would be desirable.

HOW COLOR IS PRODUCED

To use color well it's helpful to understand its nature. Colors are produced by varying wavelengths of light. Without light, color completely disappears. Objects appear black, which, as Andreas Feininger (*Complete Photographer*) asserts, does not mean "that their color still exists but cannot be seen because of lack of light. It literally means that in darkness color ceases to exist."

The color of an object is dependent upon the light that falls on it. An object that appears red in sunlight (sunlight has red-producing wavelengths) will change color in fluorescent light (which lacks red). And even in sunlight at different times of day, colors will change. Because the diffusion and position of the sun varies, a subject photographed at sunrise will be warmer-toned (redder) than the same subject photographed at noon, which will be bluer because the light wavelengths are shorter. Candlelight subjects take on very warm orange tones; incandescent light gives subjects warm yellowish hues; and photofloods cool subjects with bluer hues. The color we see is essentially determined by the predominant wavelength of the light illuminating an object and the light that object's surface absorbs, reflects or transmits.

However, there's more to it than meets your eye or mine. Sometimes the color that is transmitted is not the color your brain receives. You're often deceived by your mind.

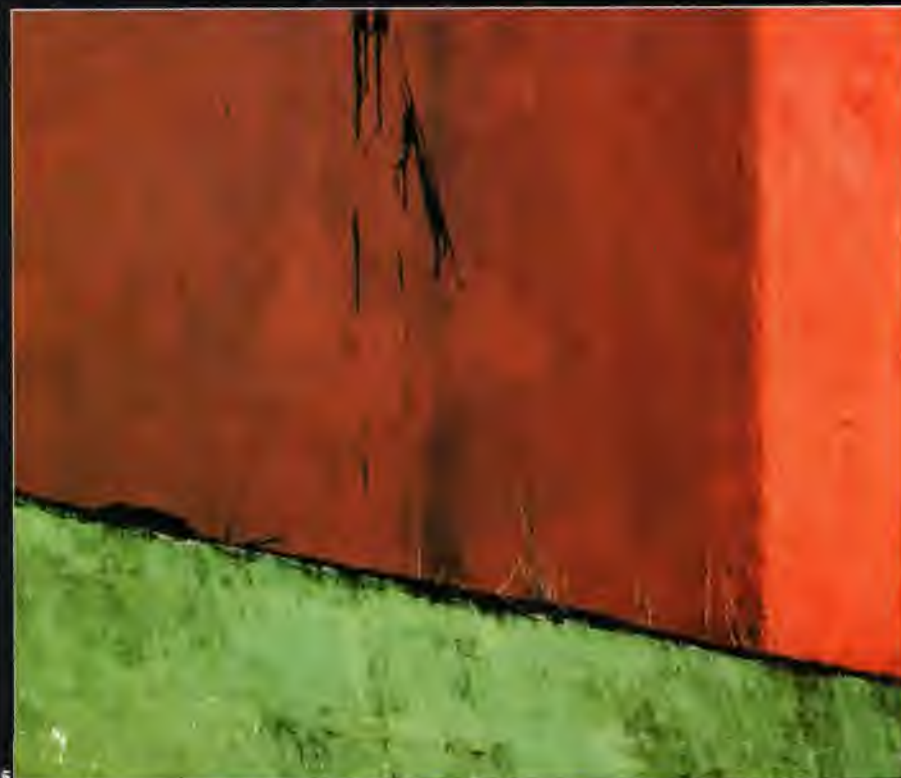
COLOR PERCEPTION

Perception—the way things appear to you—is interpretative. You tend to see things the way your brain thinks they should look instead of the way they actually are. At Graphic Communications Computer Association's symposium on color, Bonnie Swenholt, a color engineer from Eastman Kodak, described the effect this way: "Color is not in the object but in our minds."

In other words, a person posing against a blue wall appears natural to your eye, but in a photograph—which has an objective eye—you'd realize that the person's face was tinged with blue. The photograph looks unnatural and unreal. Yet in reality the person did have a blue-tinted complexion because of the blue-reflecting light. The eye, unlike the camera, has the capacity to maintain a color constancy. To the eye, pinkish skin-tones appear pinkish regardless of the wavelengths of the incident or reflected light. Even though light is composed of different wavelengths (and thus different colors), to your eye it appears white. Yet on film, which is sensitive to spectral variations, the color is registered. So while your mind adjusts to see a person's face as normal-toned in fluorescent light, film records the greenish skin tones just as they appear under the green-producing lightwaves.

Swenholt defines color as "the perception by our minds of the fact that light can be modified by the absorption of some part of its rays." A red-producing light reflecting from a screen may not appear red to your eye, depending on what else is in the surroundings. In addition, a dark color against a light background generally appears more intense than it would against a deeper background.

The eye perceives roughly 130 hues, but only four are basically different from one another. These are called the "psychological primaries," which Swenholt cites as red, yellow, green, and blue, plus black and white. Color appearances differ according to variations of hue, saturation and brightness. *Hue* describes color in terms of wavelength of light and identifies one color from another, e.g., yellow-green or orange-yellow. *Saturation* defines the measurement of hue in a color since color is mixed

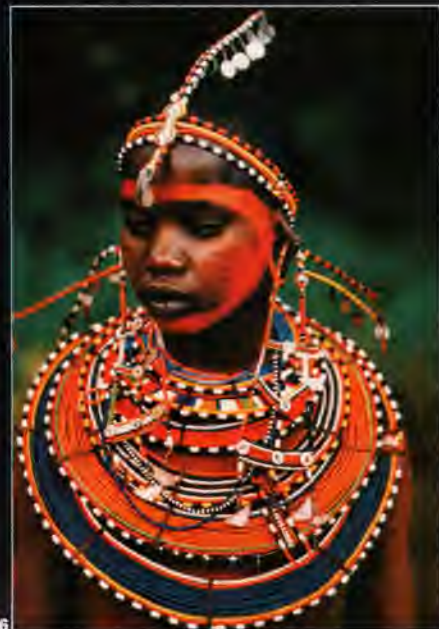


3. Had I moved up to the railing and photographed only the watery blues of the Pacific from the Santa Monica pier, the image would have been peaceful and relaxing. But I wanted to achieve drama and interest, so I chose to contrast the color-related background with the dominant color of the boy's brilliant sweatshirt. ©Peggy Sealton

4. Color can speed up identification of typical subjects, as in this photograph of a friend taken in the country. The out-of-focus spring-green background tones give information about season and location and also create a sense of depth and motion. ©Peggy Sealton

5. Contrasting colors of equal intensity vibrate against one another and cause tension within the frame. On a single surface, color makes the difference in perception of near and far. Green (cool) recedes and becomes less significant, suggesting foreground; orange (hot) projects and becomes the dominating subject. ©Gary Braasch

6. Vibrant colors attract your eye more than in photo No. 2, but you notice emotional content of facial expression less. Your eye is tugged by the decorative, scintillating colors of the tribal garb, especially the beadwork. Color is more informative, more realistic, but also more distracting. ©Ted Schiffman



COLOR

with different amounts of white light. *Brightness* describes color's lightness/darkness or intensity.

These variables are also pretty tricky for the photographer. You can easily misinterpret overall brightness because of color saturation. Contrasty light usually appears brighter than flat, gray-sky lighting, but actually the brightness may be the same. Once again the mind compensates, this time for brightness constancy. Chances are you'll see a red object as the same intensity whether the light is bright or dim. A bright red pillow far from the window light appears just as red to your eye as if it were close to the light. In your head you know the pillow's color and therefore you perceive it as bright red regardless of the strength of the light. Lacking a brain, film cannot "see" bright red in dim light. Film only sees what's there and is incapable of accepting the wide latitudes your mind can. Your eye can perceive extreme contrasts, but film cannot. To avoid misreading situations and improperly exposing your pictures, consider the following suggestions.

CONTROLLING COLOR

The prerequisite for taming color is to see it. Sounds pedestrian, but I mean seeing color *photographically* and not as your eye/brain misleads you to see/perceive it. To make a pleasing photograph of that person posing against a blue wall, you must train your eye to see the reflecting color or at least be aware of it. A commonly misjudged situation occurs outdoors when posing someone under a leafy tree. The subject appears natural to the eye, but light filtering through the lush green leaves is actually casting a green hue over his face. And even more potentially unpleasant—which you might not notice because of your brightness-constancy sensing—are the shadows usually formed under eyes and nose. On film you'll see extremely unflattering black patches.

Be sensitive to subtle shades and reflections. Be aware of the amount and direction of light falling on subjects. Consciously consider surface colors, source of light, its type, surrounding reflective objects, and shadows. Select film according to the type of illumination in which you're shooting. Films are balanced for

different light sources. For instance, outdoors—for the under-the-elm-tree portrait—you'd choose daylight-type color film. Indoors you might use Type A or B color film balanced for incandescent lighting.

Now, with your newly acquired sensitivity about human sight versus film sight, you can observe variations of light intensity in a situation and avoid misjudging exposures. By noticing that red pillow lurking in dim light, you can take a meter reading specifically of the pillow to help you arrive at an accurate exposure. In general, pay special attention to dark-colored objects, which tend to get underexposed more easily. Bracketing is good extra insurance.

In certain situations you can actually use shadows to advantage. As Gary Braasch mentions, by using "zone-system thinking" (assigning specific exposure values to certain colors), you can make an exposure in which shadows go quite black. The result will render color more intense by contrasting striking color against a dark, shadowy background.

If you'd like to achieve greater control and alter light to carve out moods, or if you want to partially correct existing illumination, you can consider using CC (color compensating) filters.

To get the most out of using filters it is important to know about primary and complementary colors and how they work. Theory has it that the eye is sensitive to a band of three primary colors: red, green and blue-violet. These are called "additive primaries," which when mixed together in proper proportion are perceived by the eye as white. To stimulate your eye into seeing yellow, both a source of green and a source of red light must be mixed in proper proportions. Likewise, red and blue light can be combined to produce magenta; green and blue form cyan. Practically any shade can be produced by combining the three primaries in different proportions, including colors that don't even exist in nature's spectrum, such as cyan and brown. However, in order to use additive color mixing, three separate light sources are needed. And since illumination for viewing photographs is usually a single source, such as a projector light for slides or a white light bulb for prints, you need to consider the "subtractive primaries": magenta, yellow and cyan. Subtractive primaries transmit and absorb additive primaries in a single source of light and can be

used to control the combination of additive primaries. Thus, in a single source of light, subtractive primaries can produce any other color. Magenta transmits red and blue, absorbs green; yellow transmits red and green, absorbs blue; cyan transmits blue and green, absorbs red. The additive primary that each subtractive primary holds back (absorbs) is its complementary color. Magenta holds back green, so green and magenta are complementary colors, and so forth.

Transparency films rely on the subtractive process. They remove (subtract) colors to make other colors. To make red, the complementary blue and green must be subtracted from the emulsion. When too much is subtracted—as when you overexpose—an image is washed out.

Negative film combines the two processes. Exposure builds up (adds) the opposite (or complementary) color to the emulsion. When the print is made, the colors and densities are reversed. A dark red on a negative becomes a light cyan in a print.

A color filter functions in the subtractive sense. A filter transmits its own color (which is a mixture of two other colors) and holds back its complementary color. A yellow filter, for instance, transmits yellow (which is a mixture of red and green) and holds back its complementary, blue.

Finally, then, let's return to the poor blue-toned chap still leaning against the blue wall. If you wanted to correct the blue tinge, what color filter would you select? Yellow, of course, which would absorb the blue and render a warmer flesh tone. Since it absorbs blue, the filter also lightens the intensity of the blue wall. So you can also use filtration to help separate and emphasize colors, which adds or diminishes contrast. (Of course, an even simpler solution for eliminating the blue reflection is to move the subject to a less reflective location.)

As for your other subject posing under the elm tree, you could filter out the green with a red filter. Or you could alter the color by adding another light. Fill-in flash is often used in such situations to effect a more natural rendition. At the same time, fill-in light can help to eliminate unwanted facial shadows.

Another control technique is effected by using colored gelsatins in front of photo lamps. (Feininger recommends Roscoe theatrical gels.) This procedure is particularly suited to studio work in which you actually set up the

environment. With the gels/lamps, you can selectively add color to different portions of your picture.

In the same way, you can use other lights directed onto portions of a scene to effect variations. And instead of lights you can even use reflective objects, such as mirrors, aluminum, or glossy white cardboard to fill in light.

WHEN TO USE COLOR

"The importance of color lies in its use and not in its nature," stresses Bonnie Swenholt. Color is such a powerful quality in a picture that it can overpower a subject, or it can even be the subject. Both Glen Heller and Michael DeCamp use color that works on its own level.

Heller's abstractions have little to do with objects, people or the natural world but a lot to do with colors, shapes and tones. Color defines an illusionary world and triggers specific psychological reactions. Likewise, DeCamp uses color in terms of shapes and tones. But in his pictures, color actually sculpts his subjects. As he says, "color forms the shapes."

DeCamp enjoys color and concentrates on it, claiming he "can't think in black-and-white." He prefers to put hues together in a pleasing, attractive way. DeCamp uses mostly complementary colors (see this month's cover). Complementaries generally produce active, exciting, eye-catching photographs. Yet, had DeCamp assembled contrasting colors in a discordant way, the pictures would instead be jarring and uncomfortable.

Another engaging facet of DeCamp's images lies in the way he uses the emotional implications of colors to heighten a sense of fantasy. The ballooning yellow sphere against a blue, white-puffed background creates an odd relationship of reality and unreality. You're not sure of what you're seeing. The yellow is joyous and vital; its shape suggests a bright, glowing sun. But if the blue-white background is read as cloud-strewn sky, then what's the yellow? The image offers colorful illusions, which your mind interprets freely.

Illusions can also be developed by painting colors directly onto your photographs. Photographers Marcia Resnick, Karen Truax and Elizabeth Lennard, for instance, start with black-and-white photographs and paint colors onto selective image areas. This isolates and separates visual planes to confound—and fascinate—the viewer.

Gary Braasch illustrates another method of creating illusion by using

colors that express foregrounds and backgrounds. Reds (hot colors) are aggressive and dominate a composition, while greens and blues (cool colors) recede. In Braasch's picture of the green-orange wall (photo No. 5), the orange (warm tone) dominates; the green (cool tone) recedes. The colors clue identification (because of psychological associations). Green keys you to think "ah yes, that must be grass," and orange signals, "yep, brick wall." But actually the surface is one and you react to and interpret the colors' differences. So colors can purposely mislead and create surreal elements that add interest.

You can produce terrifically startling, unnerving images by applying out-of-the-ordinary colors to typical subjects. A pale blue lake rendered orange or a snow-white ski slope in purple can look positively-bizarre. To achieve unnatural or unusual colors, use filters, slide duping, or such processes as photo-silkscreening, posterizing and painting on prints.

If you want to unify and quiet down a composition, use related colors, such as varied hues of the same color—for example, blue-purple, blue, and blue-green. Monochromatic color renditions are the most soothing to the eye. You can see the difference in the photograph I took at the Santa Monica pier (photo No. 3). The eye is immediately riveted to the aggressive, dominant red, and the composition becomes alive and active rather than tranquil. Here, color has been precisely used as a graphic tool to focus the viewer's attention. A lot of editorial and advertising photography depends upon color for this very purpose.

Besides using related colors to unify, if they are low in brightness (such as pastels), you can use them to create impressionistic, poetic feelings. Pastels are wonderful for setting subdued, romantic moods.

Finally, as you've already seen, color can add clarity. In the Kenya pictures (photos No. 2 and 6), color explains more about the tribal people, their designs and their culture. Color also reveals textures much more prominently.

To sum up, you should use color when it is significant to the subject matter (such as nature) or when it adds a desirable dimension to a photograph (such as vital information, another level of perception, depth, clarification, vibrancy, romanticism, focus, persuasion, decoration or mood.)

TECHNIQUES FOR ADDING COLOR TO PHOTOGRAPHS

You can create color pictures in numerous ways. The most obvious is to use color film. Besides positive and negative films, try infrared or instant print films.

Paint onto black-and-white photographic print surfaces using color pigments. You can use a variety of mediums for hand-coloring, including photo-oil colors with cotton wads, watercolors with paintbrushes, food dyes, or colored pencils and markers.

Color can be added or altered, muted or brightened, by using some of the following processes: gum bichromate, dye-transfer, toning, blue-print, Kwik-Print (see "Talking Tech," December, 1978 issue), Xerox or 3M color copy, carbro and the various color printmaking chemistries.

It's obvious that there's good reason for all the hoopla about color. It's opened up new doors to photographic seeing and printmaking. And its many facets have added spice, challenge and excitement to picture taking. Go on—put hues in your photographs and see the difference! □

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In Canada: General Photographic Products, Ontario M1P 2E4. A product of Sigma Corporation, Tokyo 182, Japan.

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Technical Data

Aperture Range: f64, f2.8—f22

Construction:

4 Elements in 4 Groups

Coating: Sigma Multi-Layer

Angles of View: 18° Diagonal,

15° Horizontal, 10° Vertical

Min. Focus from Film Plane:

59.1" (1.5m)

Field Size at Min. Focus:

8.5 x 12.75" (21.6 x 32.4cm)

Diaphragm: Full Automatic

Lens Hood: Built-In Retractable

Filter Size: 55mm Screw-In

Dimensions: 2.68 x 3.46" (68 x 88mm)

Weight: 15.3 oz (434g)





MAURO MARINELLI: OLD- TIMERS

In this pictorial tribute to his Italian ancestors, Mauro Marinelli documents the faces and expressions of those who came from the old country to live in America. "I wanted to create a testament that would uphold the memory of the 'old-timers' and their unique ways while visually augmenting the history of Italian immigrants," Marinelli says. "I remember my grandmother made 'sweet pizza' for every holiday season. Our family never wrote down her recipe; we just couldn't imagine a holiday without Grandma's pizza. She died three years ago, and there hasn't been sweet pizza since. It was part of her special presence, her way, now lost.

"I am a second-generation Italian-American. I will age, but I will never be called an old-timer by my children. The term is not just conferred with age; it is a title of respect and honor for all those who persevered and survived in an immigrants' America."

Here a lined face, a hand at rest, intense eyes or a peaceful countenance bespeaks the quiet dignity of a proud tradition. One of Marinelli's subjects displays a family portrait, a fading relic of a vividly remembered past. Marinelli's photographs, too, will become visual heirlooms for future generations. They will be eagerly pursued by young children and reminisced over by their parents, a reminder, in an age of rapid acculturation, to second, third and fourth generations, of who they are and where they come from. □

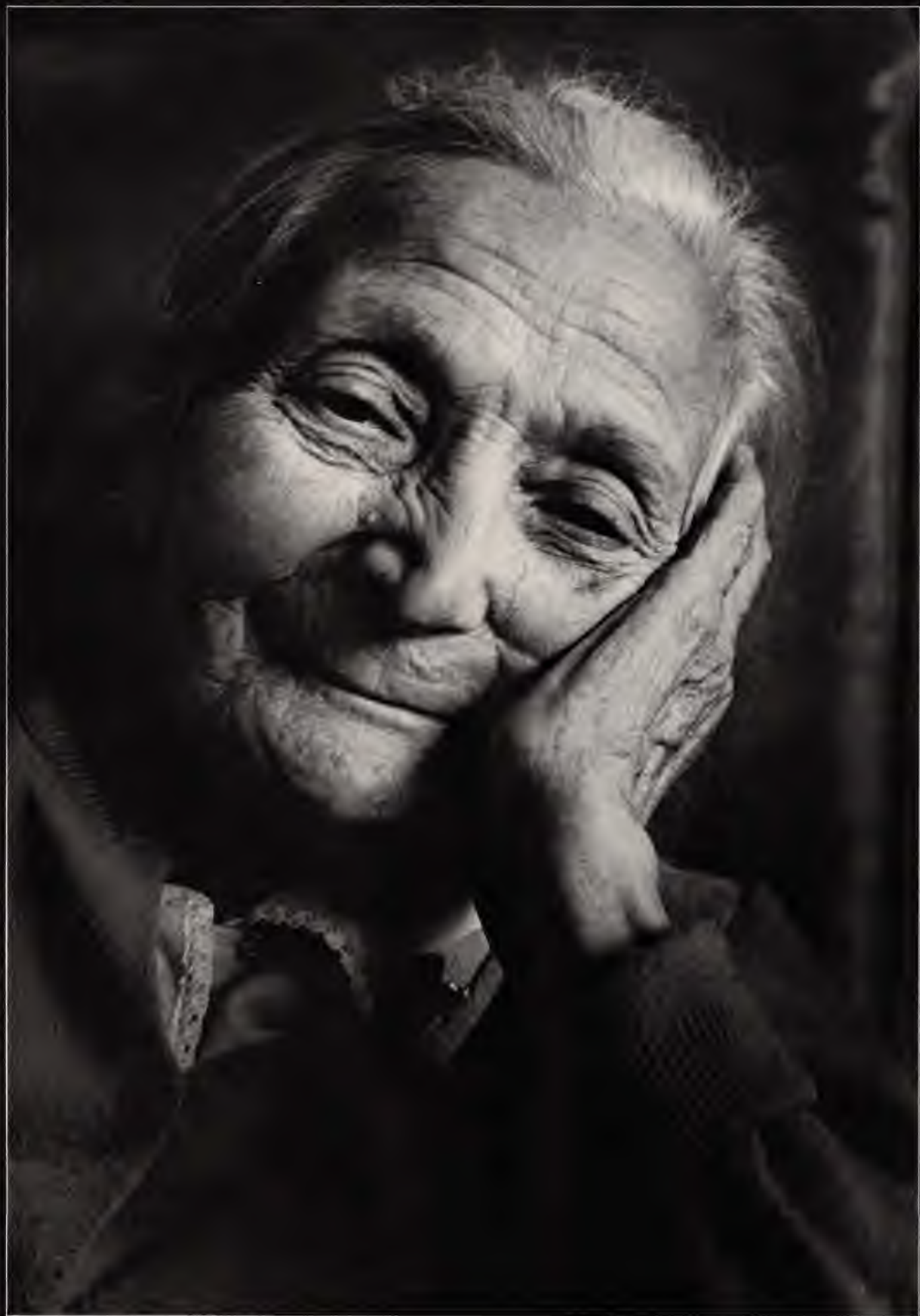
Mauro Marinelli is a free-lance photographer based in New York City whose current work is in photojournalism and editorial photography. He used Nikkormat cameras, Nikkor lenses and Kodak Tri-X Film to make the photographs on these pages.

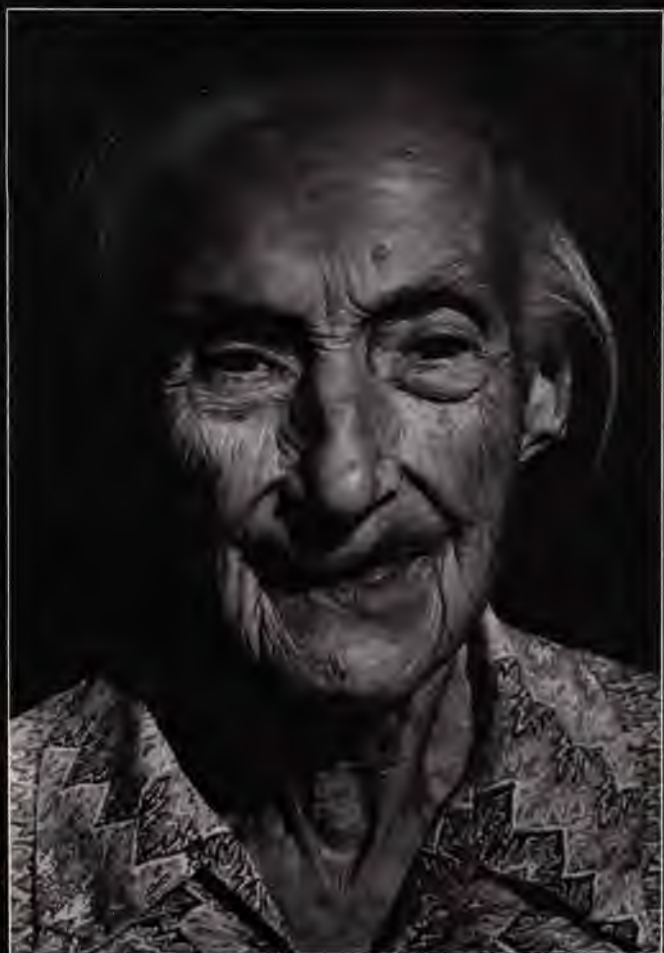


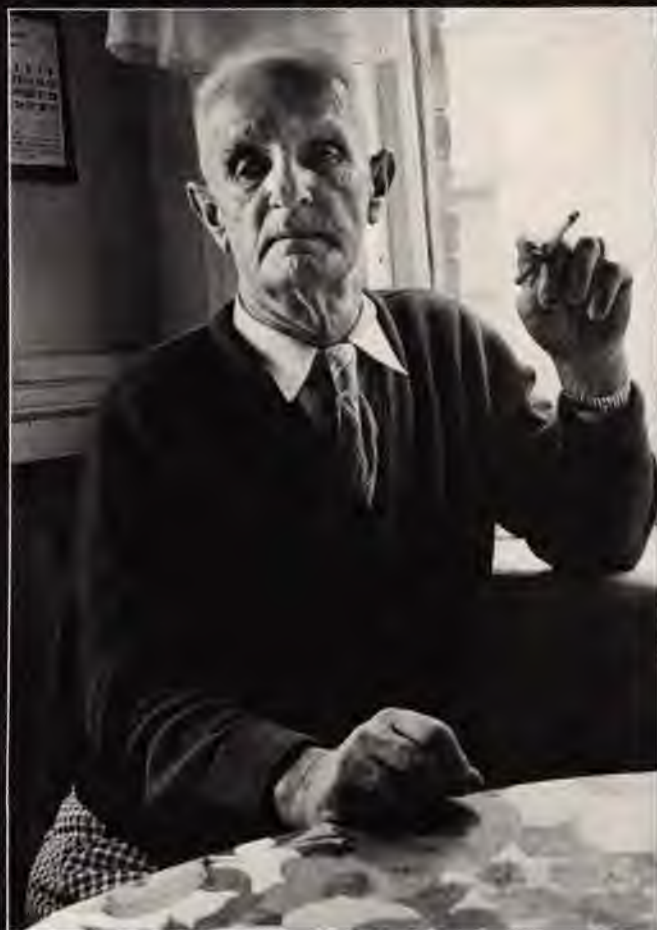
MAURO MARINELLI











MAURO MARINELLI





Photographic's SPEC SHEET

LENS: Sigma 16mm f/2.8



ANGLE OF VIEW: 180°
NUMBER OF ELEMENTS: 11 elements in 9 groups
ACCESSORY SIZE: Has built-in filters
APERTURE RANGE: f/2.8 to f/22
FOCUSING RANGE: 6 inches (15cm) to infinity
DEPTH-OF-FIELD SCALE: Yes
INFRARED FOCUSING MARK: Yes
LENS COATING: Sigma Multi-layer
WEIGHT: 12.4 oz. (347g)
FINISH: Black anodized-rubberized grips
LENGTH FROM FRONT TO FLANGE, AT INFINITY: 2.62 inches (65.5mm)
MAXIMUM BARREL DIAMETER: 3 inches (75mm)
CLICK STOPS: Half-stop detents
ROTATION DIRECTION FROM INFINITY TO CLOSE-UP, IN USE: Counterclockwise
BUILT-IN LENS HOOD: Yes
SPECIAL FEATURES: Four built-in filters—Y-48 (yellow), O-86 (orange), LB-180 (color conversion-blue), L-1A (skylight)
MOUNTS AVAILABLE: Pentax K, Canon, Pentax Universal, Konica, Minolta MD/MC, Nikon A-1, Olympus, Contax RTS/Yashica FR, Fujica
PRICE: \$330 with case, front and rear lens caps, lens shade

LENS: Sigma 28mm f/2.8



ANGLE OF VIEW: 75°
NUMBER OF ELEMENTS: 8 elements in 7 groups
ACCESSORY SIZE: 52mm and 62mm (dual)
APERTURE RANGE: f/2.8 to f/22
FOCUSING RANGE: 14 inches (35cm) to infinity
DEPTH-OF-FIELD SCALE: Yes
INFRARED FOCUSING MARK: Yes
LENS COATING: Sigma Multi-layer
WEIGHT: 8.9 oz. (250g)
FINISH: Black anodized-rubberized grips
LENGTH FROM FRONT TO FLANGE, AT INFINITY: 2.1 inches (51.5mm)
MAXIMUM BARREL DIAMETER: 2.9 inches (71.5mm)
CLICK STOPS: Half-stop detents
ROTATION DIRECTION FROM INFINITY TO CLOSE-UP, IN USE: Counterclockwise
SPECIAL FEATURES: Four built-in filters, dual filter size
MOUNTS AVAILABLE: Pentax K, Canon, Pentax Universal, Konica, Minolta MD/MC, Nikon A-1, Olympus, Contax RTS/Yashica FR, Fujica
PRICE: \$227 with case, front and rear lens caps, lens shade

LENS: Sigma 24mm f/2.8



ANGLE OF VIEW: 84°
NUMBER OF ELEMENTS: 10 elements in 8 groups
ACCESSORY SIZE: 52mm and 62mm (dual)
APERTURE RANGE: f/2.8 to f/22
FOCUSING RANGE: 10 inches (25cm) to infinity
DEPTH-OF-FIELD SCALE: Yes
INFRARED FOCUSING MARK: Yes
LENS COATING: Sigma Multi-layer
WEIGHT: 9.75 oz. (273g)
FINISH: Black anodized-rubberized grips
LENGTH FROM FRONT TO FLANGE, AT INFINITY: 2.06 inches (51.5mm)
MAXIMUM BARREL DIAMETER: 2.86 inches (71.5mm)
CLICK STOPS: Half-stop detents
ROTATION DIRECTION FROM INFINITY TO CLOSE-UP, IN USE: Counterclockwise
SPECIAL FEATURES: Four built-in filters, dual filter size
MOUNTS AVAILABLE: Pentax K, Canon, Pentax Universal, Konica, Minolta MD/MC, Nikon A-1, Olympus, Contax RTS/Yashica FR, Fujica
PRICE: \$293 with case, front and rear lens caps and lens shade

DISTRIBUTOR: EPOI-Unitron/PPD, 101 Crossways Park West, Woodbury, New York 11797

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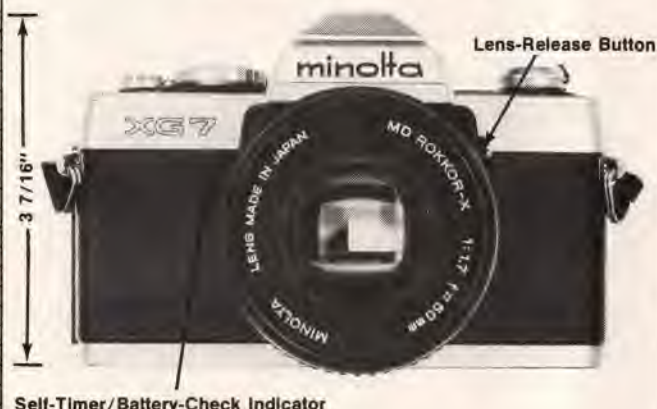
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Photographic's SPEC SHEET

MINOLTA XG-7



TYPE: 35mm single-lens reflex

SIZE: 5 1/4" long x 3 7/16" high x 2" deep (138mm x 88mm x 52mm) (body only)

WEIGHT: 17 13/16 oz. (505g) (body only)

LENS MOUNT: Minolta SLR bayonet

PRICE: \$430 with 50mm f/1.7 normal lens; \$491 with 50mm f/1.4 normal lens; \$557 with 58mm f/1.2 normal lens. Accessory Auto Winder G, \$125 including case.

DISTRIBUTOR: Minolta Corporation, 101 Williams Drive, Ramsey, New Jersey 07446

FEATURES

Normal Lens: The 50mm f/1.7-16 normal lens has six elements in five groups, 47° angle of view and minimum focusing distance of 17 3/4 inches. It weighs 6 1/2 ounces. The 50mm f/1.4-16 normal lens has sev-

en elements in five groups, 47° angle of view and minimum focusing distance of 17 3/4 inches. It weighs 8 1/2 ounces. The 58mm f/1.2-16 normal lens has seven elements in five groups, 41° angle of view and minimum focusing distance of 24 inches. It weighs 16 1/4 ounces. All three normal lenses have a 55mm screw-in filter size.

Viewfinder/Focusing System: Eye-level, fixed pentaprism with rectangular eyepiece that accepts accessory magnifier, angle finder and eyepiece diopter correction lenses. Noninterchangeable focusing screen features central horizontally oriented split-image surrounded by microprism collar and Fresnel screen. Viewfinder shows 93 percent of film-frame area. Viewfinder information includes stepless shutter speeds indicated by ten light-emitting diodes, LED over/under-range indicators; LED at "60" position blinks as flash-ready signal in auto or manual mode with Minolta Auto Electroflash 200X. Mirror is oversize quick-return type.

Shutter: Electromagnetically controlled, horizontally traveling rubberized-cloth focal-plane shutter. Automatic speeds are stepless from one to 1/1000 second. Manual speeds are stepped from one to 1/1000 second, plus B. Shutter speed dial to right of pentaprism incorporates ASA index.

Exposure Control System: Automatic operation with aperture-priority and full manual operation are provided. "A" position on shutter-speed dial sets auto mode. Shutter speed for aperture chosen appears in viewfinder. Through-the-lens metering in both automatic and manual modes by means of two CdS cells provides center-weighted metering. Touching the shutter-release button activates the meter. Shutter release locks automatically to prevent overexposure if required shutter speed in auto operation exceeds 1/1000 second. Exposure adjustment of $\pm$ two stops in full-stop increments provided by shutter speed/auto dial. Film-speed range is ASA 25-1600.

Flash Synchronization/Accessory Shoe: X-sync provided for shutter speeds up to 1/60 in manual mode; automatic flash sync at 1/60 when Auto Electroflash 200X unit is used in automatic mode. Sync provided via PC connector and hot-shoe. Class M, MF and FP bulbs synchronized up to 1/15.

Film Advance/Frame Counter: Single-stroke advance lever has 30° standoff position. Automatic film advance provided by accessory auto winder. Automatic-resetting frame counter shows number of frames exposed.

Power Supply/Battery Check: Two 1.5-volt silver-oxide batteries (S-76 or equivalent) are required for meter and shutter function. Main switch on top left of camera incorporates battery-check position.

Self-Timer: Moving main switch to self-timer position and depressing operating button sets delay of ten seconds. Red LED on front of camera blinks when self-timer is operating. Self-timer can be canceled at any time by turning main switch to off position.

Lenses: Including standard lenses, more than 38 interchangeable Rokkor, Rokkor-X and Celtic lenses are available, from 7.5mm fisheye to 1600mm mirror lens. All of these lenses provide auto and manual operation.

Accessories: Camera accepts aforementioned viewfinder attachments, complete close-up system, copy stand, microscope adapter and Auto Winder G, which provides up to two fps continuous operation or individual shots.

Photographic's SPEC SHEET

BAUER S50 XL SUPER 8 SOUND MOVIE CAMERA



TYPE: Super 8 sound movie camera

LENS: Bauer Neovaron f/1.2, 8-40mm (6:1) zoom. Focusing from five feet (1.5m) to infinity; manual and one-speed power zoom.

SIZE: 9" long x 2 1/2" wide x 8 1/2" high (230mm x 65mm x 215.5mm)

WEIGHT: 3 lbs. (1.4kg)

BASIC PACKAGE: Camera body and lens, lens cap,

viewfinder eyecup, wrist strap, microphone, mike stand, wind screen, earphone and instruction manual.

PRICE: \$524.50

DISTRIBUTOR: AIC Photo, Inc., 168 Glen Cove Road, Carle Place, New York 11514

FEATURES

Viewfinder: Reflex viewfinder fitted with a micro-prism rangefinder. Groundglass focusing with aperture scale, sound-volume indicator and film-running/end-of-film indicator clearly visible. Built-in eyepiece adjustment of ± 5 diopters.

Exposure System: Fully automatic aperture control with through-the-lens CdS meter; manual aperture settings possible with aperture control dial. Aperture range is f/1.2 to f/45; ASA range 25 to 160.

Filming Speed: 18 frames per second for sound and silent films.

Footage Counter: Automatic resetting mechanical counter.

Batteries: Four penlight "AA"-size alkaline batteries (or rechargeable nickel-cadmium batteries of the same size) supply the camera drive, amplifier and exposure meter.

Battery Check: Push button on side of camera and adjacent indicator lights up if batteries are working properly.

Conversion Filter: Built-in 85 (Type A) filter controlled by inserting filter screw into socket on top of camera; ASA setting automatically controlled by notch on film cartridge.

Sound System: Insertion of sound-film cartridge automatically switches on transistorized sound amplifier. Amp remains switched off when you drop a silent film cartridge into the camera. Automatic recording volume control with two-step "high/low" sensitivity switch. Inputs for included omnidirectional microphone and earphone for monitoring sound are on side of camera.

Additional Features: "XL" designation in camera name indicates capacity for low-light filming. Picture can be faded in or out with touch of button on side of camera. All control lights are light-emitting diodes (LEDs). Remote control is possible with switch on microphone or with separate optional remote cable. Red action light at front of camera signals to actors that the camera is running.

Accessories: Telescoping boom mike with case, remote control cord, microphone extension cord, and carrying case.

COMMENTS

The Bauer S50 XL is designed for beginning filmmakers and home movie enthusiasts who are interested in documenting events or shooting good sound footage of family activities. It's a lightweight, easily handled model, with simple-to-operate controls that are clearly marked. An ideal camera for anyone interested in making simple sound movies, the S50 XL might frustrate moviemakers who need more sophisticated equipment to carry out elaborate ideas for films. The 18 frames-per-second fixed running speed makes blowups to 16mm or video transfer for television broadcast nearly impossible, and animation cannot be accomplished because there's no single-frame release. But anyone in the family could probably aim, focus and obtain good results with little or no previous film experience, and this overall ease of operation is probably the camera's best feature.

PRODUCT PROOF SHEET

(Continued from page 72)



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The Shear Trimmer from Leedal, Inc. is engineered to accurately cut 14-ply mount board (.050 in.) or single-thickness illustration board, photographic paper, acetate sheets, tissue and other materials. Unlike conventional rotary cutters in which the cutting wheel is above, this unique design positions the cutting wheel below the cutting edge to maximize visibility and safety. Available in 15-, 18- and 24-inch sizes; 35- and 48-inch sizes will also be available in cutting head only for mounting on table or workbench. Suggested list prices are: \$120-15", \$130-18" and \$160-24". For more information contact Leedal Inc., 1918 South Prairie Avenue, Chicago, Illinois 60616.



A NEW PORTRAIT-LENGTH LENS FROM PENTAX

Pentax Corporation introduces a new 85mm f/2 fully automatic lens that has five elements in four groups, offers a 29° angle of view and focuses as close as 2 feet 9 inches. The lens has a minimum aperture of f/22. It comes equipped with a bayonet mount, accepts 49mm screw-in filters, and features full-aperture exposure metering as well as Super-Multi-Coating. The optic weighs 8.8 ounces, its diameter measures 62.5mm, and its length is 46mm. The suggested retail price with slip-on lens hood and case is \$357.90. For more information contact Pentax Corporation, 9 Inverness Drive, East, Englewood, Colorado 80110.

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PRODUCT PROOF SHEET

(Continued from page 93)



A SHORT STORY IN COLOR

Fuji Photo Film U.S.A., Inc. is introducing 12-exposure rolls of 35mm Fujicolor F-II color print film. The film has an ASA speed of 100. Called the "Short Story Film," each 12-exposure roll has a suggested list price of \$1.80 without processing. Fuji prepaid processing mailers are available, and the current 12-exposure 110 film mailers will also be honored for the new 12-exposure 35mm Fujicolor F-II. For more information contact Fuji Photo Film U.S.A., Inc., 350 Fifth Avenue, New York, New York 10001.



CANON INTRODUCES A NEW, COMPACT 500MM LENS

The new Canon 500mm f/8 S.S.C. mirror-reflex lens is compact (3.5 inches in diameter, 5.7 inches in length) and lightweight (25.9 ounces). Lens construction consists of six elements in three groups (including the mirror). Multiple-layer coating on all lens surfaces and electrostatic black flocking inside the rear of the lens barrel help prevent internal reflections, while the system of moving the front element group allows close focusing with minimal helical movement. Focusing is from 15 feet to infinity, with both feet and meters indicated on the mount. Other features include a stop ten degrees past the infinity mark to allow for focus shift in low temperatures, helicoid ring rotation of 195 degrees from infinity to 15 feet, and the ability of the camera to be rotated 90 degrees and locked into position for vertical or horizontal image framing. The breech-lock lens mount has no signal pins because of the single aperture design of the lens, and in addition to use with all Canons using the breech-lock mount, the lens may also be used automatically with the Canon A-1 in stop-down metering mode. The built-in lens hood may be extended 28mm, and the filter slot at the rear of the lens accepts 34mm Canon filters. The suggested list price of the Canon 500mm f/8 Mirror Reflex lens is \$530. For more information contact the Photographic Products Division, Canon U.S.A., Inc., 10 Nevada Drive, Lake Success, New York 11040.



NEW, RUGGED MONOPOD BY KARL HEITZ, INC.

The new Gitzo Mini-Monopod Studex by Karl Heitz, Inc. is a compact (14 1/2 inches) and lightweight (one pound) monopod that extends to a maximum height of 56 1/2 inches. The five telescopic extensions are designed to be friction-free, moving smoothly on fiber sleeves. The individual quick-locks have soft, weatherproof rings. The Gitzo Mini-Monopod, with a five year warranty and a wrist strap, has a suggested retail price of \$69.95. For more information contact Karl Heitz, Inc., 979 Third Avenue, New York, New York 10022.



SHOW TWICE THE NUMBER OF SLIDES

Yankee Photo Products, Inc. is introducing new two-packs of the two most popular Yankee Universal straight slide trays with dust covers. Two 40-compartment or two 36-compartment Universal Slide trays are available. Each tray comes with its own pressure-sensitive index card and is numbered 1 to 36 or 1 to 40. These trays fit current and discontinued slide projectors, such as GAF/Sawyers, Keystone, Aire-quip, Minolta, Nikkormat, certain models of Focal, Penncrest, Wards, Ansco, AO Executive, Kodak 300-500, Viewlex, Crestline and Viceroy. The suggested retail prices are: 32-compartment, \$3.20 per pack; and 40-compartment, \$3.70 per pack. For more information contact Yankee Photo Products, Inc., 11295 West Washington Boulevard, Culver City, California 90230.

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□ It's tough being an amateur historian. As such, you seldom have the time or the tools to research everything of interest as completely as you'd like. Inevitably, curiosity about the historical development of photographic hardware leads up to a certain point, and just when you think you're making headway, the trail suddenly ends. Since photography's recorded history is far from complete, many questions are bound to arise about what, when, where, and especially why certain things did or did not happen. The game is called "Didja Ever Wonder?" and we're going to play it this month.

Didja ever wonder why many postwar Japanese cameras are such odd-looking beasts? Japanese cameras are just beginning to attract the serious attention of collectors, but those of us who were kids in the immediate postwar era recall the large variety of strange-looking cameras coming out of the Far East. At the time we chalked it up to one of two things: It was either innovative design or the result of an industry that didn't know what it was doing or where it was heading. Since the passage of time has proven both possibilities to be false, the question is, "Why?"

Japan's camera industry has a far longer history than most of us realize, but it was most memorable for reproducing less-expensive versions of precision German cameras of the era. Both Canon and Nikon came to world attention with virtual copies of various Leica/Contax models. But Japanese photographic manufacturing was severely dislocated as a result of World War II, and its rebirth after V-J Day took the form of a "cottage" industry—a term used to describe an industrial activity that has its beginning in the home.

And just what does the cottage industry concept have to do with Japanese camera design? Simple—funds for research and development are extremely limited when a business is started on the proverbial shoestring. Since these postwar cameras were manufactured right in the entrepreneur's back yard, design was a pragmatic function based on what was available. To produce his cameras, the "manufacturer" simply bought the various components needed from larger companies and then assembled them, as the old Universal Camera Company did in this country during the '30's.

Thus, the body came from one source, the lens mount from another, the viewfinder from a third, etc. For reasons of economy such components were usually prewar leftovers or the unused remainder of a discon-

VINTAGE VIEWFINDER

KALTON C. LAHUE

DIDJA EVER WONDER?

tinued production run. The number of a given model that could be produced in this way was limited to the supply of like components that could be bought. When the supply of one or more of his parts was exhausted, our "manufacturer" turned to another source, and the result was a new model—hot on the heels of the previous one. This situation continued well into the '50's and accounts for both the peculiar design and the limited production of various



A curious blend of old and new, the rangefinder-coupled Makina 67 has a collapsible bellows lens and exposure automation. Available in late '78, it will list for over \$700.

lesser-known Japanese camera makes. It also produced some interesting and unusual collectors' pieces.

Didja ever wonder what happened to the grand old Plaubel Makina line? Known as a high-quality manufacturer of prewar plate and sheet film cameras, Plaubel developed the first fully synchronized German camera (the Makina III) and electronic flash unit (Makiblit), both of which were introduced at the first Photokina held in 1950. Marketed in this country by Willoughby's (a large New York camera store), the Makina had a tough time competing with the Busch and Graphic press cameras of the era, due to its unusual appearance and higher price. As changing postwar tastes and escalating costs relegated the Makina to a status camera with few takers, it followed many other fine German cameras into oblivion.

Plaubel then abandoned the consumer market to concentrate on the manufacture of large-format studio

cameras and accessories. But fate has a strange way of intervening at times. In 1975 the Doi Group, a large Japanese discount retailer/photofinishing firm, bought the West German firm of Plaubel Feinmechanik und Optik. Doi recently established Plaubel U.S.A. in New York to market a new line of medium-format cameras, beginning with the all-new Plaubel Makina 67. Ironical, no? The Makina 67 incorporates the latest electronic wizardry, and 600 units will be produced a month—300 for the U.S. and 300 for the European market.

Didja ever wonder why twin-lens reflex manufacturers didn't mount a better fight against the single-lens reflex menace back in the '50's? For example, they could have installed a diaphragm in the viewing lens as a depth-of-field check. Well, they did—at least the 1955 Primoflex VA did. Its viewing lens contained a set of aperture blades and a mechanism to operate the aperture in conjunction with that of the taking lens. Obviously, it wasn't very effective against the SLR onslaught. The only other TLR manufacturer to adopt this depth-of-field system was Mamiya. The feature was incorporated in a 105mm Mamiya-Sekor f/3.5 DS optic once offered for the C330.

Didja ever wonder why your Yashica 44 is gray, but the one your collector friend down the street has is brown? Strangely enough, the 44 remains the sole Japanese concession to those strange photographic bedfellows of color and fashion. When it was introduced in early 1958, the Yashica 44 was offered with a choice of seven different colors—charcoal gray, silver gray, pastel blue, lavender, burgundy, rosy brown and golden brown. Yashica designated the choice as an indulgence for milady in "Symphonic Colors," but that didn't stop Franke & Heidecke from claiming the 44 was a direct steal of its 1957 Baby Rolleiflex.

Was it? Well, I wouldn't venture an opinion, even though I owned one of each at the time. Both companies are still in business, so why reopen an old wound? But there's little doubt that the Rolleiflex people were highly miffed when the upstart Yashica stole a march on them. You see, soon after the Baby Rolleiflex appeared, market research discovered that the camera (available only with a gray leather covering) appealed in particular to women. Noting this, Yashica reasoned that seven would be better than one and set out to knock off the German 4x4 with a burst of color. Those looking for a reason to collect will find locating all seven a worthy challenge. □

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How To Make A \$3 Camera Strap

BY CHARLES ROWAN, JR.

PROJECT: To make a camera strap.

PURPOSE: To construct a camera strap that is strong, attractive and unique.

EQUIPMENT: 1. 54 inches of one-inch tubular closed webbing (15¢ a foot from Eastern Mountain Sports, Two Vose Farm Road, Peterborough, New Hampshire 03458, part No. 73-6553); 2. one-inch slider (Eastern Mountain Sports part No. 80-4914, six for \$1); 3. ten nickel-plated rapid rivets (35¢ from Tandy Leather Company, P.O. Box 791, Department CR, Fort Worth, Texas 76101, part No. 1231); 4. two 3/4-inch swivel snaps (Tandy part No. 1168, 79¢ each); 5. Craftool rivet setter (Tandy part No. 8100, 95¢), rotary punch (Tandy part No. 1792, \$5.95), or round drive punch (size No. 2, Tandy part No. 1777, \$1.59); 7. candle and matches; 8. hammer. (You might be able to obtain these parts at local mountaineering and sporting-goods or leatherworking supply stores.)

PROCEDURE: Cut a piece of webbing 54 inches long (it is sold by the foot, so you'll probably have a 60-inch piece. Incidentally, this webbing has a breaking strength of 4000 pounds). The cut end of the webbing will fray slightly. To fix this, simply pass the frayed end of the webbing through the flame of a candle (see photo No. 3). This will melt the edge (see photo No. 4) and prevent more unraveling. (Try this using the scrap end of the webbing first, to get the hang of it.)

Now you are ready to put the hardware on the webbing. Determine which side of the slider is up (the arched side is the top) and slip the webbing through it (see photo No. 5). Fold the strap as shown in photo No. 5, then punch a hole in the center of the folded area (see photo No. 6). In-



1. This is the completed camera strap.

2. The tools and parts required to make the camera strap include: top row—rivets, round drive punch and webbing; bottom row—rotary punch, slide, rivet-setting tool, swivels, vise or hammering block. (Also needed but not shown are hammer and scissors.)

sert a rivet through the hole and set the rivet using a hammer and rivet set (see photo No. 7). I use a five-rivet pattern (see photo No. 8), which I measure by eye.

Next, run the webbing through a swivel snap, then the slide (see photo No. 9). Insert the unused end into the remaining swivel snap and fasten as before (see photos No. 10 and 11). Take time to examine the folding and which way the rivets go, as shown in the pictures. All that is now left is to hang your camera on the strap and get

used to the electric blue color.

Some cameras require the use of larger mounting rings (available at your local camera shop). My Nikon required the removal of the plastic inserts in the rings, but my Yashica required no modifications.

Please send for the catalogs from Eastern Mountain Sports and Tandy before ordering any parts; that way the mailing costs can be included with your order, providing faster service. Tandy Leather Company is nationwide; mail orders should be sent to the nearest store. □



3. Frayed webbing ends can be seared closed by passing webbing through flame.



4. Top webbing end is seared; bottom end is frayed.



5. To make correct fold, pass webbing through slide, then fold in. Rivet head should be on long end of webbing.



6. Holes are punched with special tool for rivets.



7. To set rivet, first insert rivet in hole, rivet should be on long end of webbing. Place rivet bottom on vise or hammering block using rivet-setting tool on top of rivet; then strike with hammer. Check rivet to be sure it is set properly and does not come apart.



8. The five-rivet pattern is best for maximum strength and a balanced appearance.



9. Slide webbing through swivel and adjust slide rivet heads so that they are on outside.



10. Fold other end of webbing the same as in photo No. 5; rivet head should be on longest side of webbing.



11. Set rivets and swivel end, then strap is complete.



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□ It should not surprise us that seven- and eight-year olds are highly visually oriented. After all, most of their sensory contact with the outside world has been through visual perception. But in the years following early childhood, traditional educational emphasis on verbal mastery alters children's natural sensory inquisitiveness and arranges it into a cultural pattern of verbal symbolization. They experience a transference from sensory reality to symbols with a subsequent fragmenting of the world as they have known it; it is sorted into convenient, verbally structured categories of biology, math, etc. While this cognitive emphasis may have served us well in man's survival against nature, we may in fact be educating our children lopsidedly; the insistence on a highly developed verbal style comes at the expense of a more balanced intellectual development more appropriate to our contemporary culture and personal development.

To look to the natural educational progress of small children in their perceptual growth—the sharing of both visual and verbal perception—as a possible pattern for their ongoing higher education is daring and counter to most previous educational theory. If one were to follow the traditional theories of childhood development, one would question the observations and conclusions of Pamela Linehan Gimenez in her work with young children at the Columbus Museum of Art, Columbus, Ohio.

Pamela had been working with junior and senior high school students in photo criticism when she had the notion that kids of seven or eight could do it. She sees criticism as a method for understanding and appreciating visual statements. "I do not mean to oversimplify any of the functions of criticism as critics may use them, but I am basically an educator and interested in an educational function for criticism. Therefore, I see it as a method that can be learned at a very young age. I discovered that you could facilitate the teaching of criticism by using the group dynamic in the questioning technique (area of social psychology), and that's what I do. It seems to work pretty well." (Having heard a remarkable recording of questions and responses, I certainly agree!)

Pam continues: "There are those who say it is not even appropriate to teach criticism to seven-year-olds since they can't make aesthetic judgments. I disagree, as I don't see critical judgment as being totally aesthetic judgment. I think for the young child it's a matter of preference,

camera ON CAMPUS

ROBERT ROUTH

CHILD CRITICS: NOT TOO LITTLE, JUST TOO FEW

which is very important to cultivate."

Pam is quick to point out that she is not confusing judgment with preference, but for the seven-year-old who is basically uneducated toward visual statements she sees judgment as an opportunity to make a statement about his or her own preferences. Educationally, it is important to encourage the follow-up—mainly, to get the child to understand what his or her criteria are.

In the museum, where Pamela has



Photographic criticism can play an important role in developing a child's visual perception; see text for details.

served as assistant curator of education, the touring groups are integrated; children end up with kids from other schools and other backgrounds. "In questioning them I began to understand—and they did, too—that many of their 'preference statements' were based on what their parents thought. They began to discover that there were different points of view and that those different points of view were quite valuable. I think that was pretty astounding because most kids, when they come to a museum, have a notion that there is a specific truth about visual statements, and that truth stands, and there isn't any way you can change it. I disagree with that; therefore, my interest in teaching criticism to seven-year olds is to try to cultivate in each of them an ability to understand his or her own criteria for making judgments so that perhaps in later life they will be able to weigh those personal criteria with other standard criteria that have become more acceptable by a majority of people."

Pamela explains, "The technique of being a small-group facilitator demands that you become so attuned to what is going on in the group that

you almost forget yourself. You are a leader, so to speak, not a teacher or an authoritarian person. This is especially important when working with small children. I have never had a seven-year old ask what I thought about something. High school kids usually ask right away."

"One of the things I try to impress on the kids is the time element involved in photography as well as the various functions that photography serves in our culture. After our conversations in the museum, I take them out to look at billboards, magazines and newspapers to show them that they are actually surrounded with photography in a larger sense, and that when they look at a photograph, thousands of other people are seeing it at the same time. Photography is a pervasive visual statement in our everyday life. From this generalization I like to work toward the individual artist who is making very intimate, unique statements with photographs that are not seen simultaneously by thousands of people—images that are interpreted differently, responded to differently, and have different effects on people."

Pamela points out that photography is a particularly important language in our culture right now, one that can be read on a variety of levels—a language in which function has a great deal to do with how we read it. "I emphasize function of photographic style to little kids, and although this seems incredible, they get it! They can understand style because at this time in their lives they are conscious of their peers, the clothes they wear, the way their hair is cut. You can teach style by discussion—getting them to talk about themselves and their environment, and then moving on to the photographer and the way in which he sees his environment and what his particular style is in relation to some other style."

As to applying this approach to schoolroom classes, Pamela sees little difficulty. The integration of photographic studies into a visual education program that enhances the personal visual sensory experiences of the individual would be an important step in humanizing education and reaffirming the value of direct sensory experience for total growth. Pamela sees early childhood as the appropriate time to start.

Currently working on doctoral studies in art education, Pamela welcomes inquiries from readers. Send a stamped, self-addressed envelope to Pamela Linehan Gimenez, 2261 Indiana Avenue, Columbus, Ohio 43202. □

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short EXPOSURES



FLASH UNIT TO TRIPOD ADAPTER

How many times have you needed off-camera flash for portraits, close-ups, or bounce lighting? It is difficult to hold a flash unit with one hand while shooting with the other. Here is a simple device that solves the problem and makes off-camera flash a pleasure.

Take an approximately 2 x 1 1/2-inch piece of 1/16-inch-thick aluminum, and bend 1/4 inch of the 1 1/2-inch-dimension edges over 180 degrees, leaving just enough space for the flash-unit base to slip under the rolled edges. Drill a 1/4-inch hole toward one end, and epoxy a 1/4 x 20 nut over the hole. The flash holder

will now accept a pan-head screw.

Using a five-foot coiled PC-cord extender for synchronization, the flash unit can be mounted on a tripod, tilted in any direction, and remain fixed while the exposure is made.—Grady E. McCright, Las Cruces, New Mexico



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You can provide your darkroom with a mobile, inexpensive safelight by substituting the white light bulb in any small table lamp with a safelight bulb. If an extension cord is used, any area of the darkroom can be illuminated by simply moving the lamp.—ER

(Continued on page 108)

PhotoGraphic Magazine will pay \$5 for each photo tip published. Text should be approximately 10-15 typewritten lines; photo illustration or line drawing only. Material will be returned only if a stamped, self-addressed envelope is included. Send your tips to "Short Exposures" Editor, Petersen's PhotoGraphic Magazine, 8490 Sunset Boulevard, Los Angeles, California 90069.

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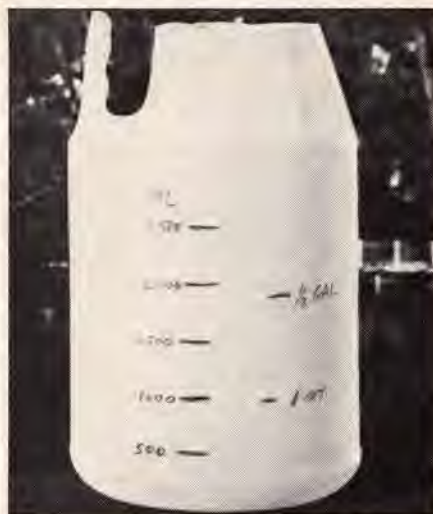
SHORT EXPOSURES

(Continued from page 104)



INSTANT DARKROOM LIGHTBOX

For viewing and identifying negatives prior to printing in the darkroom, an inexpensive lightbox can be made by adapting a common, household ceiling light fixture. From your local hardware or building supply store, select a flat-domed style made of opal-translucent molded plastic and mount it flush to the wall close to your enlarger.—DB



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100mm f2.8 . . . 129.95
135mm f3.5 . . . 88.95
150mm f3.5 . . . 125.95
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☐ "I am confused over airport X-ray machines and whether or not they harm film. I do a lot of traveling and nearly always take photos, but not until recently have I become suspicious of these machines. The signs above the machines say they don't harm film, and my film has never been harmed, but several friends claim that these machines do irreversible damage. Could you straighten us out once and for all?"—Laurence Nobis, Philadelphia, Pennsylvania.

It would seem that airport X-ray machines do harm undeveloped film more often than not, but nobody in authority is willing to admit it. The effect of X-rays on undeveloped film is logical—X-rays are nonluminous rays of electromagnetic radiation capable of penetrating thin metal and other opaque substances, including the thin metal of 35mm film cartridges. The Federal Aviation Administration claims that when it uses X-ray detection devices at airports, radiation dosage is minimal and not powerful enough to affect "normal, nonscientific" photographic emulsions. This may or may not be, but what about the traveler whose carry-on luggage is repeatedly X-rayed throughout his or her trip? The effects of X-rays are cumulative so that perhaps their effect may not be noticed the first time through, but the second or third time may add just enough radiation to ruin those priceless travel pictures.

A recent study done by a Chicago-area high school student on the effects of airport X-ray devices shows rather conclusively that these devices harm film. David Joseph, whose work in this field was good enough to win him a top prize in the Illinois State Science Fair, states that airport fluoroscopic inspection devices harm undeveloped film by increasing grain size; raising the exposure index; lowering acutance, sharpness and light transmission; and worsening overall contrast. His results were very well documented.

To get another side of the story, I spoke with several employees of a Los Angeles security firm who had manned X-ray detection machines at Los Angeles International Airport and who had dealt with travelers on an everyday basis. They said that they had made some nonscientific experiments of their own with various machines running unexposed and exposed film through the machines with the film both in and out of the camera. They said their photos exhibited no adverse effects! They said that although their tests were nonscientific in nature, they didn't notice

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AIRPORT X-RAYS

anything really unusual about their finished prints. In fact, they said they had conducted their "experiments" from time to time and sent the film to a favorite lab for processing and printing, and the results were the same—acceptable. I then asked if they had many complaints from passengers about the X-ray devices, and they said they did—all the time!

This brings us to one of the biggest problems of the airport X-ray controversy: the way in which people



When you are on your next trip, and your camera bag is whisked through the X-ray inspection device at the airport, will your film be harmed?

perceive the effects of X-rays on their film, combined with the unpredictability with which these devices harm film. This ambiguity was related to me by Dr. Elie A. Shneour, a noted biophysicist who is currently president of Biosystems Associates, a biomedical research firm based in La Jolla, California. Dr. Shneour maintains that amateurs and professional photographers look at their results quite differently. An amateur tends to accept a color shift or mysterious shadow as his fault. A pro, on the other hand, will seek to pinpoint the causes of his irregular photos.

Dr. Shneour further explained that virtually every time X-rays are directed at a photographic emulsion there is an effect. Since X-rays are a more energetic form of radiation than visible light, even the most limited contact with an undeveloped film will have an image-degrading effect. Dr. Shneour explained that this is primarily because each photographic emulsion, whether color or black-and-white, has certain predictable characteristics built in by the manufacturer. With black-and-white film, this typical behavior of a film and given developer is seen in the film's characteristic curve. With color film, things are balanced even more

precisely because there are three emulsion layers, which must react in a synchronized and predictable manner to obtain properly exposed, color-balanced prints or slides. With the variables of precise exposure and development so important, combine the effects of X-radiation, which is known to raise exposure index, reduce sharpness and even produce a shadow image of an item adjacent to the film in a bag or pouch. You now have a situation in which a given film's predictability of performance is greatly affected. To further complicate matters, no two airport X-ray devices perform exactly alike. In different parts of the world, in the United States, and even within the same airport, varying amounts of radiation are used. Machines are adjusted differently. There are a number of different types of machines. Machine attendants examine articles for varying pulse rates of time, etc. The list of variables is endless.

What can the photographer do? Most photographers I know insist on a hand inspection of their carry-on luggage, including camera bags and film pouches. Unfortunately, sometimes X-ray machine attendants can be gruff and make you feel guilty for holding things up by a hand inspection. But fortunately this is your right as a paying passenger, and a hand inspection is in keeping with FAA Regulation 121.538a. In fact, the Chief of Air Security of the western region of the FAA, John J. Robitaille, explained that the FAA has no preference between either a hand or machine inspection as long as the carry-on luggage is examined. You can also store your film and cameras in your luggage that will go in the hold, but even that's not foolproof, as Chief Robitaille says that hold luggage is subject to spot-X-raying even though he estimates that less than ten percent of all hold luggage is X-rayed. Another preventive measure is to use the lead-lined film and equipment pouches, such as SIMA Corporation's FilmShield pouches. These are excellent for use in the United States but may not be as effective when used in Europe, where the radiation doses are more powerful.

Nobody, photographers included, is in favor of a less responsible security system at airports. But if the variables of X-raying procedure continue to be so extreme, the photographer has no other alternative than to demand a hand inspection of cameras and film *each time* he/she boards an aircraft. Forewarned is forearmed, so next trip take the precautions that will allow you to enjoy your vacation pictures. ☐

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So it's no surprise that the newest breakthrough in SLRs comes from Pentax.

What is a surprise is that this new SLR is not a 35mm. It's the Pentax System 10. The world's first 110 SLR with interchangeable lenses, auto-winder, auto-flash, and completely-automatic programmed electronic exposure. In other words, it's the first entire SLR

system to ever appear in the compact, cartridge-loading, 110 format—complete with many of the features that are now just beginning to appear in the latest 35mm SLRs.

But that's not all. System 10 is by far the smallest and lightest SLR ever made. It measures just 2-1/5" x 3-9/10" x 1-4/5" with the standard lens. It weighs a mere 5.6 ounces. It will fit in the same area of your gadget bag where you would normally fit just one zoom lens. Or it will fit easily in your shirt pocket. And, as you'd expect, it's built with the same ruggedness and precision engineering that has made Pentax the world's largest seller of 35mm SLRs. Again, we expect to be imitated.

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System 10 is that camera. The three, presently-available Pentax 110 lenses have been designed to optimize the potential of 110 films. System 10 lenses are so fine and so precise, that they can render a proper, razor-sharp image on the 110 negative itself. They are fully capable of producing color images of outstanding quality. Not just at 8" x 10," but at 11" x 14" also. In terms of image quality, System 10 is the first 110 camera that can honestly be favorably compared to a 35mm SLR.



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PROGRAMMED AUTO EXPOSURE

System 10's automatic exposure system is truly a wonder. Both aperture setting and shutter speed are programmed by the camera in accordance with the lighting conditions. By ingeniously combining the shutter with the aperture blades, Pentax engineers have created an exposure system that's amazingly sensitive and accurate, yet incredibly simple to use. System 10 even employs Silicon Photo Diodes, as opposed to the old, slow-responding CdS cells.

Shutter speeds vary from 1 sec. to 1/750 sec., while EVs range from 3 to 17 (ASA 400 with Pentax 110 24mm f/2.8 standard lens). Apertures range from f/2.8 to f/13.5.

AN SLR VIEWFINDER

As unbelievable as it may sound, the image in the viewfinder of the System 10 rivals that of even the best 35mm SLRs, in terms of size, brightness, clarity and contrast.

Inside, you'll find a surprisingly large, split-image finder, surrounded by a matte glass field. You'll also see either a green or a yellow LED in the lower right corner. The green LED lights up when there's enough light for shooting at shutter speeds faster than 1/30 sec. If an exposure below that speed is required, the yellow LED lights up, meaning a tripod or flash is suggested to shoot your picture.

The split-image finder, the LEDs, and your subject are all you'll see in the viewfinder. No needles. No clutter. All you do is focus and shoot.

SUPERB LENSES

System 10 comes with a standard Pentax 24mm f/2.8 lens. It has 6 elements in 5

groups, and it's the equivalent of a normal 50mm lens in the 35mm format. Also available are a wide-angle 18mm f/2.8 lens, perfect for scenics or interiors, with 6 elements in 6 groups (35mm equivalent: 35mm), and a moderate telephoto 50mm f/2.8 lens, perfect for portraits and candid, with 5 elements in 5 groups (35mm equivalent: 100mm).

All lenses are bayonet-mount, so changing them is literally a snap.

A variety of close-up lens attachments are also



18mm wide-angle lens.



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50mm telephoto lens. available, so you can take terrific macro shots of stamps, coins, or anything small.

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ACCESSORIES

Individual UV and skylight filters may be obtained for both standard and wide-angle lenses. Collapsible lens hoods, camera pouch, and eyepiece correction lenses as well as closeup lenses are also available.

The System 10 combines the sophistication and versatility of a modern 35mm SLR with the compact ease of the 110 film format.



To the professional and the advanced amateur it's an excellent second camera that fits anywhere, and could even become your camera of choice.

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Pentax System 10. (Available in limited quantities only, at select photographic stores.) For more information write: Pentax System 10, P.O. Box 2585, Littleton, Colorado 80161.

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San Francisco Peaks, Arizona. 21-mm lens, 1/25 sec., f/14.



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